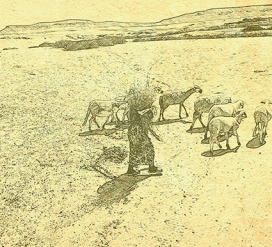


Moving on in Neolithic Studies

Understanding mobile lives

Edited by

Jim Leary and Thomas Kador



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MOVING ON IN NEOLITHIC STUDIES

*Moving on in Neolithic studies:
Understanding mobile lives*

Neolithic Studies Group Seminar Papers 14

Edited by

Jim Leary and Thomas Kador



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Front cover image by Jim Leary

Foreword

This book presents the proceedings of a seminar held under the aegis of the Neolithic Studies Group (NSG), one of an ongoing series of NSG Seminar Papers. The NSG is an informal organization comprising archaeologists with an interest in Neolithic archaeology. It was established in 1984 and has a large membership based mainly in the UK and Ireland, but including workers from the nations of the European Atlantic seaboard. The annual programme typically includes a seminar in London during the autumn and, in spring-time, a field meeting in an area of northwest Europe known to be rich in Neolithic remains.

Membership is open to anyone with an active involvement in the Neolithic of Europe. The present membership includes academic staff and students, museum staff, archaeologists from government institutions, units, trusts, and those with an amateur or avocational interest. There are no membership procedure or application forms, and members are those on the current mailing list. Anyone can be added to the list at any time, the only membership rule being that the names of those who do not attend four consecutive meetings are removed from the list (in the absence of apologies for absence or a request to remain on the list).

The Group relies on the enthusiasm of its members to organize its annual meetings; the two coordinators maintain the mailing lists and finances. Financial support for the Group is drawn from a small fee payable for attendance of each meeting.

Anyone wishing to contact the Group and obtain information about forthcoming meetings should contact the coordinators or visit the NSG website at:

<http://www.neolithic.org.uk/>

Timothy Darvill and Kenneth Brophy
NSG Coordinators

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Preface and acknowledgements

Mobility is a fundamental facet of being human and should be central to archaeology. Yet mobility itself and the role it plays in the production of social life, is rarely considered as a subject in its own right. This is particularly so with discussions of the Neolithic people where mobility is often framed as being somewhere between a sedentary existence and nomadic movements.

This volume examines the importance and complexities of movement and mobility, whether on land or water, in the Neolithic period. It uses movement in its widest sense, ranging from everyday mobilities – the routines and rhythms of daily life – to proscribed mobility, such as movement in and around monuments, and occasional and large-scale movements and migrations around the continent and across seas. Papers are roughly grouped and focus on ‘mobility and the landscape’, ‘monuments and mobility’, ‘travelling by water’, and ‘materials and mobility’. Through these themes the volume considers the movement of people, ideas, animals, objects, and information, and uses a wide range of archaeological evidence from isotope analysis; artefact studies; lithic scatters and assemblage diversity.

This volume originated from, and represents the proceedings of, the Neolithic Studies Group conference in 2012, organized by Jim Leary and entitled ‘Movement and mobility in the Neolithic’. Jim Leary would like to thank Tim Darvill and Kenny Brophy, the NSG Coordinators, as well as the British Museum, in particular Gill Varndell from the Department of Prehistoric and Roman Antiquities, for allowing and facilitating the smooth running of the conference. The editors would like to thank Julie Gardiner at Oxbow for help and assistance in getting this volume into print.

Jim Leary and Thomas Kador
February 2015

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Movement and mobility in the Neolithic

Jim Leary and Thomas Kador

Mobility lies at the very heart of Neolithic studies; it is one of the defining features of the period and according to much of the literature separates it from the preceding Mesolithic period. Mobility is often seen as a linear process, advancing from highly mobile Mesolithic hunter-gatherers to, as Malone put it in *Neolithic Britain and Ireland*, “one of orderly agricultural production and settled communities” (Malone 2001, 11). “A change took place from small mobile social groups, of no fixed abode other than territory, to larger sedentary communities” (Malone 2001, 21). This is part of a broader narrative that has persisted from at least the nineteenth century and sees humans as emerging from a state of wandering wildness on a path towards settled civilisation (see Thomas 2004 for more on the background of this). In this framework, hunter gatherer mobility is determined by the movements of the animals they follow and hunt; they and their mobilities are at the whim of nature. Settled farmers, on the other hand, have subdued and mastered their environment, and taken control of their mobility. In this account, human progress can be measured by people’s ability to settle down, move less, and exploit the landscape.

The anthropologist Hugh Brody, however, points out in his engaging book *The other side of Eden* that this stereotype of highly mobile hunter-gatherers and settled farmers is in reality often the wrong way around. “It is agricultural societies that tend to be on the move; hunting people are far more firmly settled” (Brody 2001, 7). This is a point also made by Robert Kelly: “many hunter-gatherers move infrequently – some less than many ‘sedentary’ horticultural societies” (1992, 43; 1995). This inversion of mobilities – of mobile farmers and more settled hunter-gatherers – upsets the traditional linear narrative of mobility described above and opens up different ways of framing both the Mesolithic and Neolithic periods. In the British Isles this reversed perspective is supported by the archaeological evidence for large Mesolithic buildings, such as that at East Barns (Gooder 2007), Mount Sandel (Woodman 1985; Bayliss & Woodman 2009), and Howick, which, at the very least, demonstrate “a long-term attachment to place” (Waddington 2007, 110). These buildings date to the early part of the Mesolithic period – well within the time supposedly occupied by Malone’s “small mobile social groups, of no fixed abode” – and therefore cannot easily be passed off as representing some sort of Late Mesolithic ‘settling down’ ready for the start of Neolithic life. Alongside this there has also been a growing sense, since the beginning of the 1990s at least, of much greater mobility during the Neolithic period; especially in

southern Britain (Thomas 1991; 1999; Tilley 1994; Whittle 1997a; see also Last Chapter 9 this volume).

The aim of this book is not to stress this point any further, but to draw attention to the complex nature and different forms of mobility, and the various roles these will have played in the production of Neolithic life. It also looks at how we might recognise mobility in the archaeological record. Life was neither static and fixed, nor highly mobile, but composed of complex mobilities. Mobility is walking, running, climbing, rowing, dancing, hunting and herding; it is cooking, cleaning, pot-making, flint knapping, hoeing, planting and fruit-picking. These bodily techniques will have varied according to cultural conventions (see, for example, Mauss 1935), or to “age, ethnicity, class, family tradition, gender, sexual orientation, talent, skill, circumstances and choice” (Farnell 1999, 343). Mobility is highly variable. People also move on and around for a plethora of reasons: resource procurement, trade, seeking a spouse, adventure, curiosity, misfortune, illness, or to follow an influential leader (see suggestions in Whittle 1997a). Mobility can be used as a mechanism to relieve social tension (Kelly 1992; 1995), or boredom, or it can be motivated for religious reasons, such as going on a pilgrimage. Patterns of movement are culturally induced and indeed can be used as a strategy to maintain cultural autonomy; Kelly draws attention to the fact that some modern groups remain mobile because they feel their mobility defines them or provides a “metaphor for freedom” (1995, 153). There are also many different forms of mobility, from travelling alone, in groups or with animals; on land or on water; and these will have led to different ways of experiencing and perceiving the world. Mobility is not rigid, nor is it a one way street from highly mobile to settled – communities can increase mobility from one generation to the next, just as they can decrease it. To take an example, it has recently been suggested that a rapid decline in the evidence for cereal agriculture in the Middle Neolithic period (coinciding with evidence for an increase in some wild resources, a period of woodland regeneration, and the almost complete disappearance in the archaeological record for any evidence of buildings) may indicate a sudden departure from crop dependence towards a mobile, pastoral based society. This may be the result of climatic deterioration which affected crop yields or caused them to fail (Stevens & Fuller 2012; Whitehouse *et al.* 2014; see also Loveday Chapter 5 this volume). There are also examples in the ethnographic record of communities whose mobility oscillates between greater and lesser for many reasons, including socially driven ones (Kelly 1995). Mobility can also vary hugely within the same community – no matter how ‘settled’ a group may be there are always segments that have greater mobility (Kelly 1995; Wendrich & Barnard 2008).

The recent literature on mobility from the social sciences has also emphasised the meanings and politics of movement, as well as the social implications of it (Cresswell 2006; Hannam *et al.* 2006; Ingold 2004; Merriman 2012; Urry 2007). Mobility can provide freedom for some individuals and groups, but it can also be used to exert power over others. Some conform to socially acceptable levels of mobility; others do not, and indeed may use it as a form of resistance (Kendall 1997; Solnit 2000). In these instances their movements may be seen as something to be controlled. Different mobilities often reflect inequalities of power within society; perhaps being more available to, say, one gender more than the other. Some people are also dependent on others in order to move – children might have to travel with their parents, or a mobility-impaired person (the ill, the old, the disabled, or

the pregnant) may be dependent upon others to help them get around. Some have more mobility and others less, and different people can gain access to different spaces – it is, in other words, unfair and unevenly distributed. People are also affected by mobility, either intentionally or unintentionally, in different ways, so that an increase in one group's mobility can reduce that of another, while some groups are dependent on the movements of others. It is complex, relational and impacts on people differently. Mobility is also fundamentally an embodied experience involving the corporeal movement of bodies. It uses the senses and is often entangled with feelings, desires and emotions. Far from being an involuntary and behavioural reaction to external stimuli, mobility is a core component of the social world (Ingold 2004). It is complex, variable and frequently socially driven, and the Neolithic period will have been no exception. Mobilities lie at the very heart of archaeology, allowing for the movement of people, ideas, objects and information from place to place, from one person to another (see papers in Leary 2014).

MOBILITY AND THE LANDSCAPE

Modern scientific techniques, such as DNA and isotopic analysis, have provided a renewed interest in mobility in archaeology and offer new perspectives on past mobility patterns, so that something of individual mobility histories has become evident to us. In Chapter 2 Bickle discusses the isotopic evidence for varied mobility in the *Linearbandkeramik* (LBK), showing that this has the potential to contribute to our understanding of both cultural transmission and Neolithic daily life. She suggests that the movement of the LBK was of addition rather than migration and colonisation, arguing that mobility patterns that make up LBK life were framed by social relationships and kinship. Drawing on the same dataset as Bickle, Bentley *et al.* (2012) have demonstrated how we can utilise strontium isotope analysis to address questions about social and community differentiation as well as access to territory and resources. In turn strontium (and other isotopes) can also be employed to investigate the origins and movements of some of those resources (*i.e.* cereal crops and livestock) themselves (Styring *et al.* forthcoming; Viner *et al.* 2010).

In a closely related context, in Chapter 3 Chan *et al.* consider the results of isotopic analysis from animal remains at the henge enclosure at Durrington Walls near Stonehenge in Wiltshire. The evidence from pig teeth suggests that the majority of pigs came from beyond the Stonehenge landscape, with similar non-local origins for cattle (see also Viner *et al.* 2010), and, therefore, perhaps indicative of “mass droving”. Droving with animals in this way is a very different way of moving through the landscape to moving without animals, requiring different paths and leaving different traces, and leads to a very different perception of the environment. In order to anticipate what the animal will do it requires knowledge of the movement, rhythms and nature of the animals; the drover needs to move and think like the animals. In this sense one's movement and perception of the world is mediated as much by the feet of the animals as by their own (Ingold & Vergunst 2008). The anthropologist Pernille Gooch describes this in her experience of goat herding in Sweden and contrasts it with buffalo herding in the Himalayas (Gooch 2008). As she describes, successful goat herding requires one to take command of the herd – become the she-goat

and perceive the world as she does. That way, when the herd becomes restless it is easy to lead them onto somewhere new. The goat herder leads from the front. In contrast, buffalo herding is a case of walking behind these large, slow, cumbersome beasts. They know their way from the summer pasture along the annual migration route to their winter grounds, and will only go at their own speed. The buffalo herder follows behind. As Gooch neatly sums up: one is a case of “feet-leading-hooves”, the other “feet-following-hooves” (Gooch 2008, 70). Moving with animals, and with different species of animal, therefore, leads to a very different style of moving, which in turn leads to disparate perceptions of the landscape, and diverse ways of being, as well as leaving behind different traces (Gooch 2008).

Pig herding indicated at Durrington Walls is mirrored at other Late Neolithic sites, including Marden henge (Leary & Field 2012) and the West Kennet Palisaded Enclosures (Whittle 1997b), and represents a distinctive way of moving (see, for example, Albarella *et al.* 2011). The logistics of animal movement, especially when travelling by boat, should also make us think carefully about the introduction of domesticates and in particular cattle to both Britain and especially Ireland (Sheridan 2003; Tresset 2003; Woodman & McCarthy 2003). The same goes for red deer, which may have been a Neolithic introduction to Ireland (Woodman & McCarthy 2003), while wild boar may have been introduced to Ireland in Mesolithic times (Carden 2012). The Neolithic world moved through was crammed with life, from birds and insects to wolves, bears, aurochs and wild boars. To these we can add spirits, ancestors and other non-corporeal agencies. The places where spirits dwell will have been known to groups, and as a result they will have been either avoided entirely – paths taking long circuitous routes around them – and/or act as a focus for travel and movement to them (Llobera 1996; 2000).

Ways of moving also vary radically depending on the terrain one is moving through, and our understanding of past movement clearly has to take the environment into consideration. Although today we are used to walking on smooth, level paths, the natural ground is far from flat, differing depending on the terrain you are on – it is textured and full of objects and debris that can trip you up (Ingold & Vergunst 2008). Moving through woodland is different to open ground, and moving through upland areas, say, accessing the Langdales Neolithic stone quarry, is obviously different to moving along a river valley in a lowland zone. Climbing requires harder work, more vigorous muscle use, and contains greater dangers that focus the mind with each careful step. It is also by nature exclusive – accessible to a more limited group of people: the adventurous, the able-bodied, the fit, and the appropriately attired (including, and especially, suitable foot ware); just think, for example, of the sophisticated and apposite cloths worn by ‘Ötzi’ the Neolithic Tyrolean Iceman. But we need to be careful about our assumptions of how ‘difficult’ landscapes are accessed, and people can be extremely adept at moving through landscapes that may appear to our outsider’s eye as impassable, often learning the ‘appropriate’ way from childhood. Anthropologist Lye Tuck-Po discusses, for example, how the Batek – a group of forest-dwelling hunter-gatherers in Malaysia – move with great speed through thick tangles of forest. Looking at this terrain as strangers to it we might believe that it is impossible to move through it at all; however, the Batek stoop, creep, crawl, climb and slither their way through the forest with ease, as well as “wading across rivers, pushing vegetation aside, cutting fruit-laden boughs, and eating the fruits,

navigating the way ... and, of course, talking ...” (Tuck-Po 2008, 25). The forest *is* their landscape. Movement for the Batek is highly social, and the group constantly talk over the best way to proceed, using a type of ‘topographic gossip’; “walking and talking are inseparable. ... paths are social phenomena” (Tuck-Po 2008, 26). Landscapes require different modes of movement and diverse bodily performances depending on their nature; they afford different protection and dangers, dissimilar ways of perceiving the world around them, and separate embodied experiences.

MONUMENTS AND MOBILITY

Much research in Neolithic archaeology has focused on monuments, which, like mobility, have come to define the period. The monuments themselves, however, can, to some extent, tell us about mobility (to them) and movement (around and along them). Pollard, for example, looked at patterns of formal deposition of various artefacts (pottery, lithics and human bone) within postholes at The Sanctuary – a timber and stone setting in the Avebury region, Wiltshire – and considered how they reflect broader patterns of movement around the monument (Pollard 1992). The evidence points to, he argued, movement being structured and organised by the architecture of the monument; it was “restricted and ordered ... to produce formal patterns of access, movement and exit” (Pollard 1992, 223). In a similar vein, Garrow, Beadsmoore and Knight considered the dynamics of deposition around the causewayed enclosure at Etton, Cambridgeshire (Beadsmoore *et al.* 2010), and an early Neolithic pit site at Kilverstone in Norfolk (Garrow *et al.* 2005). By refitting pottery sherds and flint assemblages across each site, potential sequencing of depositional practice could be reconstructed, suggesting “rhythms, tempo, and spatial dynamics of everyday practice” (Beadsmoore *et al.* 2010, 130).

In Chapter 3 Chan *et al.* describe the famous Wessex monuments of Stonehenge and Durrington Walls as a strand in a web of people, animals and things that were brought together. This web will have included the provision of huge quantities of resources (food, labour and materials – the most famous of the latter being the bluestones) during the construction and occupation of the monuments. The networks and meshworks created by the construction of these monuments involved people, materials and tools, and clearly mobility is evident in these monuments – they contain the rhythms, repetitions, and embodied actions of the people that created them. In this way, the form of monuments emerges through the ‘choreography’ of construction (to borrow from James 2003). Such choreography is also evident in the construction of another famous monument in Wiltshire – Silbury Hill. The many phases of Silbury were generated by the pattern of movements between people and materials – the regular, rhythmic motion producing its various forms and incarnations over generations. The rates at which these various phases of activity occurred provide us with a sense of the rhythms that created the mound: the repeated bodily performances of bringing materials together and re-cutting ditches (Leary *et al.* 2013). We can also imagine other movements that will have occurred at these monuments: the routine, like walking, and the perhaps less routine, such as dancing. Neolithic monuments, in this way, represent “a particular gathering or interweaving of

materials in movement” (Ingold 2011, 5). Movements through and around monuments also require one to cross thresholds, physical or symbolic, and this is a subject picked up by Moore in Chapter 4. Moore looks at the Carrowkeel-Keshcorran passage tomb complex in County Sligo in Ireland, suggesting that the monuments were wrapped in boundaries and thresholds, and that movement across these formed an important element of ritual practice. Viewed in this way, thresholds become a form of protection, and crossing them perhaps a rite of passage.

The very form of some monuments has caused researchers to explicitly reference mobility. Cursus monuments, for example, are formed of two parallel ditches that seem to mark out a straight track or routeway – an appearance that caused the eighteenth century antiquarian William Stukeley to interpret them as race courses and give them the name ‘cursus’. In Chapter 5, Loveday discusses these enigmatic monuments, pointing out that the construction of early cursus monuments coincides with the apparent Middle Neolithic crop failure and associated shift in mobility mentioned at the beginning of this chapter. Far from being simple processional monuments, Loveday explores whether they represent assembly points on long-distance transhumance routes; or formed part of emerging pilgrimage festivals; or directed the movement of stone axes; or, indeed, elements of all of these. However we choose to interpret cursus monuments they are very good to think mobility with: “cursus monuments are by their very size an attempt to monumentalise whole tracts of landscape through their linking of natural features and places with earlier monuments” (Barclay *et al.* 2003, 235). They are, perhaps then, monumentalised movement. As Loveday points out (and echoing Moore in Chapter 4), cursus monuments often occur in proximity to rivers, frequently near river confluences, which may well have been part of, and aided, that movement.

TRAVELLING BY WATER

A riverine theme is taken on wholeheartedly in Chapter 6. In this chapter Haughey explores the use of rivers as routeways in the Neolithic period, highlighting the vital role they played in producing mobility and movement through the landscape as people travelled along them. Using ethnographic examples from around the world, she describes how rivers functioned as both economic systems and symbolic highways. Recent scholarship has emphasised the role of water and, in particular, rivers in prehistory. They provide arteries for movement, and it has been argued that Neolithic monuments are often in close proximity to watercourses because they participated in lines of communication and movement (Mills 2005), and particularly long distance networks of polished stone axes, representing staging points where people met to trade information, resources and objects (Bradley 1984; 1993). Depending on where one wants to travel, though, rivers, like cursus monuments, can also create barriers across the landscape, forcing people and animals to take huge detours or funnelling their movements towards available crossing points (such as fords).

There is another aspect to rivers too, highlighted by Haughey: there are countless examples in the anthropological literature of belief in river spirits and sprites and of the sacred, metaphysical or supernatural role of rivers, of which the River Ganges in India is perhaps the best known (Strang 2001; 2005). This seems to have been the case in the

Neolithic period too, and water may have been used in a wide range of cleansing and purification rituals; certainly a connection between henges and rivers has been shown (e.g. Richards 1996a & b). Accumulations of Mesolithic and Neolithic stone axes have been found at various places along the River Thames, with particular concentrations in the wide meanders in West London (Field 1989). Similarly, vast quantities of stone axes and other large stone objects have been recovered from some of the main Irish river systems (Kador 2009; Mahr 1937; Woodman 2005). These may have been deposited as part of ceremonies similar to that recorded by George Catlin during his journey along the Missouri in the first half of the nineteenth century in which collections of stone axes and knives were ceremonially thrown into the river by the Mandan Indians to appease the river spirit.

Marden henge, the largest henge in the British Isles, lies at the head of the River Avon in Wiltshire, and clearly water and the river were important to it since they were intricately woven into the fabric of the monument. A large section of the perimeter of the henge is defined by the River Avon, while springs are incorporated within and around the enclosure and even today the ditch holds water for part of the year. At the centre of the henge once stood a large mound known as the Hatfield Barrow which was reputedly second only to Silbury Hill in size, reaching perhaps as much as 15m in height, though it has long been levelled (see Leary & Field 2012 for a description). An account by naturalist James Norris in 1798 indicated that the moat-like ditch around the Hatfield Barrow was constantly fed by springs, while antiquarian Richard Hoare in 1812 also noted that the ditch retained water. The north entrance of the enclosure faces towards the source of the Avon, visible a kilometre away, while a south-east entrance also faces towards the river. A gravel roadway was constructed within this entrance that possibly led down to the river edge, suggesting that the river, and access from or to it, were critical parts of the functionality of the henge. The entrances of the henge directed, focused and controlled the movement of people; access was restricted and movement choreographed.

In a similar way, the double-entrance henges of Newton Kyme and Ferrybridge lie near to the Rivers Wharfe and Aire and have been suggested as marking the 'Great North Route' (Vyner 2007), while Loveday (1998) has previously proposed that double-entrance henges were strung out along, or at the end of, a ritual path or pilgrims' routeway; their entrances both physically and symbolically sending the traveller along the course of their journey (cf. Mills 2005). Bradley (1999) has explored the role of prehistoric pilgrimage in the creation of monuments, and Harding (2012; 2013) has pursued this further with specific regard to the creation of the Thornborough henges in North Yorkshire. Certainly along the upper reaches of the Avon valley in Wiltshire Neolithic monuments such as Marden, Durrington Walls and Stonehenge appear to have been strategically placed for access or proximity to the river, which will have aided movement, perhaps as a pilgrimage, between them. Rivers, as Haughey makes clear, were clearly an important element of Neolithic mobility.

Travel by water was a different way of moving when compared to land, and will have provided different experiences and perceptions of the landscape. This is particularly so when travelling by sea where knowledge of the water body was essential, as was an intimate understanding of the heavenly bodies (Leary 2014). Movement around the coast has its own patterns and rhythms of movement; ebbs and flows influenced by the tides

that frequently mark it out as somewhere different, providing the people moving on it with a distinct identity. In Chapter 7 Rogers explores long-distance mobility facilitated by Britain's coastline, known as 'tramping', arguing that the coastal route was an important passage for movement during the Neolithic, with people, ideas, objects and raw materials moving along it. Again focused upon movement across sea, Gannon (Chapter 8) looks at mobility to, from, and between Scottish Hebridean Islands in the Neolithic period. She shows that far from being inhabited by isolated and insular communities, the evidence points to considerable channel crossings and island hoppings; movement that linked the islands and connected communities. Mobility across the sea enabled their world to be dynamic and interactive. A complex and fluid interweaving is frequently found within small island groups, seen in, for example, Malinowski's classic account of the Melanesian archipelago (1922). Land and sea here may be conceptualized as one, and provide a sense of shared identity – "the living milieu as a complex interweaving of land- and sea-scapes"; a "socio-scape" (Mondragón 2009, 116). Gannon's chapter uses the evidence of artefacts to reconstruct and understand the movement and actions of people and exchange cycles.

MATERIALS AND MOBILITY

Artefacts are also good to think mobility with. Clearly people travelled to collect, mine or quarry materials, acquiring them from a particular source and transporting them great distances. And sometimes they went to very great lengths to do this. The exposures of quarries and working floors recorded at Langdale in Cumbria, for example, show that some people in the Neolithic undertook very difficult and trying journeys up the mountains to quarry volcanic tuff to create axe blades (Bradley & Edmonds 1993; Edmonds 2012). The same can be said for jadeite collected from a source in the Alps and circulated widely, including to Britain, the exploitation of porcellanite from very restricted sources in Northern Ireland (Cooney & Mandal 1998), or indeed flint mines, where people went to extraordinary lengths to retrieve material. These places were themselves no doubt important, but so too was the journey; as Boivin notes: "the value of a mineral is very often related as much to the journey that was made to acquire it as to the mineral itself" (2004, 10). Once collected, these artefacts were then circulated over vast distances (Clough and Cummins 1979; 1988). Indeed, just as isotopic analysis is showing that people moved long distances, so too do we know that objects, 'things', and raw material travelled considerable distances through movement, circulation, interaction and exchange. They were caught up in their own meshworks. These included, amongst other things, groundstone adze-heads (Bickle Chapter 2), or axes-heads (Pétrequin *et al.* 1998; Bradley & Edmonds 1993; Cooney & Mandal 1998; Edmonds 2012; Loveday Chapter 5 this volume). People travelled and exchanged over immense areas, and it was the movement as much as the place that provided meaning. These mobile meanings were written into the objects.

The flows of people and things are inseparable, and understanding the movement of artefacts causes us to reflect on the movements, interactions and meshworks of people.

Artefacts can also reveal smaller patterns of mobility. Last points out in Chapter 9 that lithic scatters identified through fieldwalking are nowadays generally used for prospection and evaluation, rather than as a research tool. As he shows, however, they are much more than this and lithic data can add to the discussion “by recording the ebb and flow of human mobility”. Last calls for greater attention to ploughzone archaeology and a better integration of data from surface collection with excavation, geoarchaeological models, and monuments. As Wickham-Jones has previously noted in the context of Mesolithic studies, stone tools are “linked inextricably to human movement through the identification of geological sources” (Wickham-Jones 2009, 72; see also Kador 2007; 2009).

Bond similarly focuses on lithic scatters in Chapter 10, specifically within the limestone landscape of Neolithic Mendip. He highlights the role of the materiality of portable stone objects as an indicator of movement and exchange, but also its role in the social construction of place and the creation of identity. Bond discusses the changing perceptions and beliefs tied to long visited locales and the rationale for the selection of specific stone sources. Such perceptions of stone and other elemental properties, he argues, are fundamental to understanding the communities that inhabited and moved around this landscape. In Mesolithic studies, already alluded to above, researchers have long recognised the potential of employing lithic artefact analysis in discussions of mobility. Methodologies developed by Mesolithic specialists, particularly over the past decade or so (Conneller 2005; Kador 2009; 2013; Preston 2013), offer important applications to Neolithic and later prehistoric lithic assemblages.

CONCLUSIONS

The above discussion has explored a number of mobility-centred themes, challenging the stubborn dichotomy between the mobility of hunter-gatherer groups of the Palaeolithic and Mesolithic periods on the one hand, and more settled farming communities of the Neolithic and later periods on the other. Mobility, as discussed here, is shot through with meaning and power and the papers within this volume highlight the variety of different mobilities evident in the archaeological record from Neolithic Britain, Ireland and continental Europe. They also demonstrate how movement is an essential part of our lived experience; be it in terms of the regular journeys to acquire resources and raw materials, trips to partake in seasonal gatherings or occasional forays to more distant lands.

There is a wealth of evidence that we can draw upon to study and understand past human movement and mobility, and the papers in this volume illustrate this and the broad range of mobility in the Neolithic period. This evidence includes, but is not limited to, human and animal remains, monuments, landscapes, seascapes, and lithic and other artefact assemblages. Given its everyday nature, studying mobility in the past sheds light on people’s lives. It is a subject worthy of study in its own right, and we can use it to better understand social interactions, community relations, spiritual and religious practices, and economic activities. By looking at the archaeological evidence through the lens of mobility we can produce new ways of understanding the period and ‘move on’ in Neolithic studies.

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Varied mobility in the Neolithic: The *Linearbandkeramik* on the move

Penny Bickle

Over recent decades, archaeology has seen an increase in the number of techniques available that shed light on past mobility patterns, with aDNA and isotopic studies coming to dominate the discussion, purporting to more directly reveal human or animal movement (Price *et al.* 2001; Haak *et al.* 2005). While both techniques provide information of unquestionable detail and insight, and have brought renewed energy to our engagement with certain historical phenomena, neither technique is a neutral reflection of mobility as the data they produce arose in social practices. This should excite us – such analyses provide additional routes into the complexity of prehistoric life – but they will only do so if the tendency to reduce to neatly bounded and exclusive models is resisted. As movement has become a short-hand for investigating thematic issues pertinent to studying the Mesolithic-Neolithic transition and different subsistence modes, potential variation in mobility strategies have been overlooked. This contribution argues, to the contrary, that diverse mobility strategies would have impacted significantly on the social worlds and networks across the Neolithic (Leary 2014; see Chapter 1). Subject to contingency, multi-scalar and often age and sex dependent, movement varies from day to day and across the life-time. Human movement can be considered one of the senses through which the world is encountered; Ingold (2004, 330–1) argues, in the case of walking, that it is a haptic experience; a way of touching, seeing and hearing through the feet.

In the context of the transition to agriculture and the spread of the Neolithic, considering patterns of human mobility is hardly a new discussion. Although the various models proposed are far from straight-forward, they often rely on a contrast of the movement forms practised by farmers to those of hunter-gatherers. While we may wish to question such polarised distinctions based on solely subsistence modes (Robb & Miracle 2007), it is important to recognise just how ingrained certain characterisations of mobility are in defining the Mesolithic-Neolithic transition. Particular types of movement thus often lie at the heart of explanatory mechanisms of how the Neolithic spread; whether it is the large-scale movements of demic diffusion and migration (Ammerman & Cavalli-Sforza 1984; Vencl 1986), the repeated crossing of frontier zones in availability models (Zvelebil 1996; 2000) or the inherent mobility of hunter-gatherers in arguments for autochthonous adoption (Whittle 1996; Jeunesse 2003a). Resultantly, evidence for different types of movement is not only sought to inform on the extent to which the Neolithic transition has taken place, but also to simultaneously provide information about how the transition

took place. Human movement has therefore been investigated both as a passive reflection of human groups' subsistence base as well as a key conduit for social change. As a result, particular mobility patterns have come to characterise certain ways of life at the transition; they are a symptom of a particular lifeway rather than being entangled in the formation of that lifeway.

One of the ways to move past these contradictions and unravel to complex relationship between diet, subsistence and mobility is to consider multiple scales of mobility and begin to tease out instances of variation. Taking the *Linearbandkeramik* (LBK; c.5500–4900 cal BC) as a case study, this contribution discusses the evidence for varied LBK mobility in two settings; the beginnings and spread of the LBK, and its social networks and descent practices. To be explicit, the aim here is not to assess where current evidence situates the LBK dispersal on the axis between colonisation and indigenous adoption, but rather to illustrate how variability in movement has the potential to further our understanding of perennial themes of cultural transmission and Neolithic daily life.

MOBILITY AT THE BEGINNING AND IN THE SPREAD OF THE LBK

It is unlikely that the LBK saw a straightforward expansion out of south-east Europe. At some point in the centuries around 5500 cal BC, the LBK arose in Transdanubia, Lower Austria and possibly also western Slovakia (*e.g.* Bánffy 2004). This way of life then spread out across the central European continent, eventually stretching from the Ukraine to the Paris Basin as the sixth millennium comes to an end. About 5300 cal BC, however, the nature of the culture changed; broadly, regionality was more recognisable across different material culture forms and usage, cemeteries began and, on a smaller scale, some sites are abandoned or relocated nearby (Cladders & Stäuble 2003). However, there are indications that not all groups adopted the newer styles at the same time, and some communities may have lagged behind their neighbours (Schade-Lindig & Schade 2010). The distributions of the so-called hunter-gatherer pottery traditions, such as La Hoguette and Limburg ceramic ware, suggest that things were not the same everywhere at this time and regionally specific histories can be envisioned. For example, Daniela Hofmann and Joachim Pechtl (Pechtl 2009; Hofmann *et al.* 2013, 211) see little contribution from an indigenous population to the regional variations found in Bavaria. Allard (2007) argues that there was more continuity in lithic technology between the first Rubané (LBK) groups in the Paris Basin and those from the neighbouring Rhine-Meuse regions than found between the Final Mesolithic of northern France and the LBK. Other researchers, in contrast, have focused on continuity, for example, suggesting that the burial evidence demonstrates a sustained importance of a Mesolithic or indigenous identity (Lenneis 2007; see Mateiciucová 2008 for arguments in favour of continuity between the Mesolithic and Neolithic lithic assemblages). Jeunesse (1997) argues that the variation in the burial practices of the Alsatian LBK (*e.g.* in body position and grave orientation) originated in the maintenance of a pre- or non-LBK identity by indigenous groups incorporated into the LBK.

Looking back to the beginning of the LBK, three models exist for its origins. As summarised by Mateiciucová (2008, 33) they are: (1) the LBK arises within the framework

of the Starčevo complex as it arrived further northwards, with little or no input from local groups, (2) the LBK was inspired by the mixing and meeting of Mesolithic communities with incoming farmers to their south, and (3) the development of an LBK way of life was entirely brought about by the indigenous population but caused by their contact and exchange with the Starčevo cultural base (and Körös culture in the case of the Alföld-LBK in eastern Hungary). Oross and Bánffy (2009) have recently proposed a more refined perspective, identifying a ‘formative’ phase for the LBK congruent with a period of overlap with the Starčevo culture, located in and around the marshy landscape of Lake Balaton and taking place over four to five generations before the LBK spread through Europe. In this region Kalicz (1988) had previously suggested a concentration of earliest LBK sites, which has been borne out by recent excavation in Transdanubia (Bánffy & Oross 2010). Recent analysis comparing the radiocarbon dates from the early LBK sites with those from Starčevo contexts suggest an overlap of at least a century between the early LBK and Starčevo cultures (Bánffy & Oross 2010), though this is based on a growing but limited number of radiocarbon dates (Stadler & Kotova 2013, 265). Oross and Bánffy (2009, 177) suggest a frontier zone around Lake Balaton, where the landscape was largely unsuitable for the horticulture found in south-east Europe, and argue that the “fully sedentary, food-producing” subsistence mode only came later in the history of the LBK.

The discovery of evidence for the earliest LBK at Brunn am Gebirge, in the form of pottery of similar style to that from the Lake Balaton area (Lenneis & Lüning 2001, 7; Lenneis 2010a), suggests that the area over which the earliest LBK was established could have been quite large. Brunn is located on the southern outskirts of modern-day Vienna; over 150km to the north-west of Lake Balaton sites (Stadler & Kotova 2013, 262). Radiocarbon dates, produced on charcoal, fall over a century earlier than the oft quoted 5500 cal BC start date for the LBK (Lenneis & Stadler 2010; Stadler 2005; Stadler & Kotova 2010; 2013). The ‘old wood effect’ is likely to play a role, as the dates were carried out on charred oak (Stadler & Kotova 2013, 264), but the arguments for direct connections to Starčevo groups further south based on the striking elements of the pottery decoration locates Brunn early in the development of the sequence. In the oldest parts of this site (Brunn IIa) typical LBK decorations are absent, with the pottery comparable to Starčevo (Linear B phase) ware found in Croatia and southern Transdanubia (Stadler 2005, 270; Stadler and Kotova 2010, 345; 2013, 263, 271). On this basis, Stadler and Kotova (2013) suggest that the inhabitants of this site represent a possible mixture of Starčevo groups migrating from the south and local hunter-gatherers; a permanent and uni-directional move to establish a settled community, which then attracts local hunter-gatherers. Other early or formative forays north can also be suggested. The earliest reliable radiocarbon date belonging to the western LBK sequence is from Schwanfeld (near the Main river, Bavaria), from an articulating male adult skeleton (Hd-14219, 6580 ± 20 BP; Gronenborn 1999, 155) calibrating to 5606–5483 cal BC (95.4% *probable*; OxCal 4.2; Bronk Ramsey 2009). The dendrochronological date from the well at Mohelnice (Moravia) is $\approx 5460 \pm 5$ den BC (Schmidt & Gruhe 2003) may yet be another example. Such examples of ‘leap-frog’ colonisation thus took place alongside the more intense interaction suggested by Bánffy’s (2004) proposed frontier zone around Lake Balaton.

However, as Stadler and Kotova (2010; 2013) emphasise for Brunn, the connections between the *älteste* LBK and the Balaton region remained strong. The lithics from Brunn are dominated by the Bakony mountain-sourced Szentgál radiolarite seen at sites around Lake Balaton (Stadler & Kotova 2013, 262). This is also a characteristic common in other early LBK assemblages from Lower Austria, where this raw material is often present in a higher frequency than those from local sources (Mateiciucová 2008, 59). Szentgál radiolarite had been known about and used since the late Mesolithic in Transdanubia and Moravia, found its way to late Starčevo groups (Kalicz *et al.* 1998; Bánffy 2004, 345–7) and travelled in decreasing amounts through Austria and Moravia into Germany with the *älteste* and *ältere* LBK (Gronenborn 1999; Bánffy 2004; Mateiciucová 2008). Thus while the sites around Lake Balaton may have provided an area of concentrated communication between settled farmers and foragers, sites further north and west, such as Brunn, seem to have been brought about by a different form of movement altogether. This suggests that major patterns of north-westward movement belie several degrees of distances covered, from places of intensive small-scale mobility to more extended patterns of travelling longer distances perhaps along the major river ways (*cf.* Pechtl 2009), though for the time being evidence for movement by water such as paddles and canoes are limited to the Mesolithic, exemplified by the coracle found near Keszthely on Lake Balaton (Bánffy 2004, 350, 354).

This broad picture of variability from the beginning of the LBK is thought not to be substantiated by current aDNA work. In summary, the haplogroups found co-occurring in LBK datasets (*e.g.* N1a, T2, J, K, V and HK; Haak *et al.* 2010) show little cross-over with those from the Mesolithic population (U4, U5 and U8; Bramanti *et al.* 2009). A substantial interdisciplinary project is underway to assess the transition from the perspective of mitochondrial aDNA by concentrating on the human remains from Transdanubia (Szécsényi-Nagy *et al.* 2014a; 2014b) and there seem to be early indications from this study that the maternal LBK gene-pool was directly linked to that of the Starčevo culture. Currently, therefore, at a brief glance the aDNA work strongly suggests that population migration spread the LBK, with only rarer contributions from indigenous Mesolithic groups. However, there are two concerns I would like to raise with the ways the growing aDNA dataset has been equated with straightforward population migration. The first problem is the chronological spread of the samples. Excluding the more recently analysed Hungarian material, of the 12 sites where aDNA has been carried out only the site of Vedrovice can be argued to belong to the first phase of the LBK (Pettitt & Hedges 2008). The rest (*e.g.* Haak *et al.* 2010) belong to the developed or *jüngere* phase, with some burials dating towards the end of the LBK (*e.g.* Schwetzingen, Baden-Württemberg and Asparn, Lower Austria). Population dynamics throughout the course of the LBK are thus also relevant to interpreting the aDNA evidence (Deguilloux *et al.* 2012; *cf.* Brandt *et al.* 2013), after all the LBK was hardly a static phenomenon (Bocquet-Appel 2014). Can we really be sure that the aDNA (limited at the moment to the mitochondrial lineages) is able to distinguish between migration at the beginning of the LBK, without being influenced by population changes and/or replacement during the following centuries?

Furthermore, at Karsdorf (*c.* 5200–5070 cal BC, Mittelbe-Saale region, Saxony-Anhalt) eight per cent of the haplogroups represented at the site are identified as ‘hunter-gatherer’ (U5a and U5b) – that is, as representing continuity from pre-LBK communities – while

other contemporary sites from the same region (*e.g.* Derenburg) have produced little or no evidence of a possibly indigenous contribution (Brandt *et al.* 2014). Thus the second concern relates to regionality and hence to scale. Excluding recent studies of the Hungarian assemblage, aDNA studies are currently dominated by sites in the Mittelbe-Saale region of Saxony-Anhalt. Migration has the preferred explanation for the arrival of the LBK in this area. The presence of clay alters of the form found in the Starčevo at the älteste site of Eitzum (Lower Saxony) is often cited as evidence of direct links to the south-east, though a late Mesolithic population was surely present in the region (Kaufmann 1989; Gronenborn 1998). Given our growing understanding of varied regional histories in the LBK, surely now is the time to explore a broader range of regions. Other smaller assemblages are identified as ‘southern’ LBK (Asparn and Vedrovice) or ‘south-western’ Germany, combining the sites of Schwetzingen, Flomborn and Vaihingen an der Enz (*e.g.* Haak *et al.* 2010). Schwetzingen and Flomborn belong to regional groups centred on the Rhine (Jeunesse *et al.* 2009), leaving the one burial sequenced from Vaihingen (with a rare haplogroup of U3; Haak *et al.* 2005) as the only data point from a region rich in Final Mesolithic evidence (*e.g.* Kind 1998).

Complex regional histories in the spread and propagation of the LBK are likely to be relevant to the genetic make-up of populations. Pechtl (2009) has suggested that the LBK arrived into Bavaria from central Germany, and then eastwards along the Danube, with varied regional differences in style and pace of change which persist into the later LBK phases developing. The stylistic differences between north and south Alsace may also have arisen in groups migrating from different areas of the LBK (the Neckar valley and along the Danube), something which may go some way to explain that differences between the north and south of this region are often stronger than elsewhere (Lefranc 2007). Similar complex and multiple migration origins have also been proposed for Poland, through Moravia, Bohemia and possible even evidence of a trans-Carpathian route out of Slovakia, with continuous migration throughout the LBK into the Kuyavia region of central Poland envisaged (Czerniak 1994). Diverse regional histories, however, share broad patterns of settlement, with the low site density of the earliest LBK gradually replaced by the in-filling of clusters of settlements, within which some sites could be large and occupied for several centuries, while other smaller hamlets were perhaps only used for a couple of generations by one or two household groups before the descendants moved elsewhere (Claßen 2009, 98).

Therefore, the spread northwards from Transdanubia communicates something more fundamental about how these early farming groups approached their locales; not so much of migration and colonisation but of addition. Whether moving out or multiplying in the same region, the challenge is how we tease out the different mobility practices that were embedded in LBK ways of life and the individual histories of different regional trajectories. Taking this line of thought, the consistency of the ecological niches sought out by the LBK becomes understandable – in moving into new regions, places where the commitment to this way of life could be continued were actively sought (Barrett 2014). The settlement patterns and their spread would thus be just one of the forms and scales of movement rooted in LBK life, even if it was a necessary part of how the culture was practised. Hence, migration and colonisation are not unhelpful lines to think along when considering the spread of the LBK as both movement types are, at their core, about the process of identity maintenance during Diasporas. Themes of ancestral homelands, both real and imagined (Bradley 2001),

transmission and preservation of social ties and practice (Strien 2000; Sommer 2001; Frirdich 2005; Claßen 2005; 2009), the impact of forced or voluntary movement (Price *et al.* 2001; Bentley 2013), and the risk of ‘pioneering’ in new regions (Bogucki 1995, 94) all remain relevant to thinking through the LBK spread. However, the questions they inspire are far more pertinent to the detail of the archaeology and the regional variation found with the LBK; why did some settlements grow and others not? What forms of social organisation held settlement clusters together? In what ways did distance matter? What kept regional patterns alive? On what scale were social ties maintained?

EVERYDAY MOBILITY

If, on the scale of settlement, establishing new sites or moving into previously unoccupied regions was an important element of LBK movement, what about the individual mobility histories of LBK people? Not everyone would have been part of migrations into a new area, but this does not preclude the possibility that subsequent group or individual movements of some distance may have been made across the LBK. From the material culture, lithics suggest that at least some far ranging human movement was possible; Szentgál radiolarite reaches the Rhine – over 700km from the Bákony Mountains – though in limited numbers, while Krakow Jurassic silicate dominates the lithic assemblages in northern Poland, some 300–350km further north from its source (Mateiciucová 2008, 160). Raw material used to produce polished stone adzes could travel similar distances (Ramminger 2007; 2009). Pottery styles can also be found some distance from their region of origin. An Alföld-style pot was found at Leonding in Upper Austria over 400km away from eastern Hungary, the region to which this style was largely restricted (Grömer 2001, 17), while a number of different regional styles from the north (Rhine-Main) and east (Elbe) were represented at the Herxheim enclosure in the Rhineland-Palatinate (Turck *et al.* 2012). At the cemetery of Aiterhofen, Bavaria, two individuals were buried with pottery decorated in styles found in Baden-Württemberg and central Germany (Strien 2010, 499) and other such examples can be noted elsewhere as well (*e.g.* Strien 2000, 53). Pottery is unlikely to travel well and it remains to be seen whether it is the style or the ceramic itself that moves. Spondylus shell, found mostly in graves, fashioned in to jewellery or other wearable items, is exotic to the LBK region and most probably travelled from the Adriatic coast (Zvelebil & Pettitt 2008, 201). T-shaped axes made from red deer antler, found at Schwetzingen, Baden-Württemberg, and Eisleben, Saxony-Anhalt, suggest connections northwards, to the Baltic and the list could go on further, with possible connections to southern France in the form of Cardial ware styles in LBK contexts (Bentley *et al.* 2013, 277). Such evidence speaks to long-range movement of a different form to migrations relating to the spread of the LBK.

Of course, determining how these objects travelled – whether, for example, pottery styles travelled in the minds of individual potters or Szentgál radiolarite was passed hand-to-hand – requires detailed contextual research (*e.g.* see Zimmermann 1995 on the exchange of finished lithic products). Isotope analysis, however, has sought to offer another perspective by focusing on the movement of individuals (*e.g.* Price *et al.* 2001), but determining long-distant movement has proved difficult. In a rare example, Richards *et al.*

(2008, 189) and Zvelebil and Pettitt (2008, 211) note an adult male from the Vedrovice cemetery whose sulphur isotope ratio suggests that he may have spent most of his life in a coastal location (most likely in south-eastern Europe) before moving to Moravia in the decade before his death. The nearest coast, the Adriatic, is approximately 400km away from the cemetery. Though rare, such long-distance travellers must surely populate our histories of the LBK (Gronenborn 2010). More recently, strontium isotopic analyses have come to dominate the modelling of LBK mobility, with important insights achieved. Through the work of Alex Bentley (*e.g.* Bentley *et al.* 2012), a model of patri- or virilocality has been proposed for the LBK, evidenced by greater mobility amongst the female population. Discussion of LBK descent patterns has also been opened up through this work with the identification of a correlation between certain isotopic ratios and burial with polished stone items in the case of adult males (Bentley *et al.* 2012; see discussion in Hedges *et al.* 2013, and Whittle & Bickle 2013). Corina Knipper (2009; 2011) has furthered understanding of everyday mobility by contributing more detailed understandings of the herding strategies employed during the LBK in the region of Baden-Württemberg, suggesting that small scale herds were kept close to the settlement.

These insights have come not only through the increased number of samples, but careful consideration of how the isotopic ratios arise in human and animal skeletons based on integrating the environmental, geological and soil conditions of LBK settlement with a recognition of the deeply cultural practices in which both mobility and diet arise. Strontium isotopes make their way into the body through diet (Bentley 2013), so what constitutes ‘incoming’ or ‘non-local’ strontium isotope ratios may well originate in different dietary practices – or, at the very least, diet will be an important factor (Bentley *et al.* 2012). This means isotope ratios arose in the complex interplay between the regional soil variability, how the landscape around settlements were used and dietary practices. In the case of the LBK, determining ‘local’ strontium isotope ratio ranges are complicated by the fact that settlements were overwhelmingly placed on a certain type of soil, the loess, which produces similar strontium isotope ratios across much of Europe – though there is some variation, such as in Moravia where the erosion of the more radiogenic granites from the Bohemian Massif raises the strontium isotope ratios (Richards *et al.* 2008; this was also seen to a lesser extent at Nieder-Mörlen, Hessen, Nehlich *et al.* 2009). Resultantly, mobility within the LBK context (*i.e.* people moving from one settlement or region to another across the LBK) is unlikely to be directly discernible in the strontium data.

This does not mean that strontium data is not a useful proxy for considering mobility (Bickle & Hofmann 2007; Pollard 2011), but it does require careful attention to what practices lie behind the formation of strontium isotope ratios. Considering the data relatively, that is comparing the ratios between individuals, has proved a useful avenue towards fully contextualising strontium isotope datasets with the archaeological evidence (Bentley 2013). Women from LBK cemeteries show greater variability of strontium ratios than men; to be exact, although men and women share a similar range of ratios, men cluster more strongly within the strontium isotope ratios expected for loess soils (Bentley *et al.* 2012; Hedges *et al.* 2013, 367–8). Various explanations for this pattern can be proposed, including differences in childhood diet between the sexes (because tooth enamel is sampled, which mineralises in childhood) and more residential movement for women. Childhood

differences in diet could be a possible explanation for some of the variation, with girls fed a higher proportion of food stuffs that have been sourced from non-loess soils, perhaps also related to different tasks (*e.g.* fed less meat and as a result consuming more plants grown in non-loess locales or eating more wild plants and game because they were engaged in tasks away from the settlement; see Knipper 2011, 338–42 for simulations of different contributions of non-loess sourced food to the diet). Furthermore, non-loess sites were clearly used in the LBK; such as the scatterings of pottery, or in some cases, burials found at cave sites in various different regions, though contextual evidence from the sites themselves for the kinds of practices that took place at them are often lacking (Bickle *et al.* 2013, 167).

However, models of patri- or virilocality were supported by the strontium isotope results from Aiterhofen, Bavaria (Bickle *et al.* 2011; Hofmann *et al.* 2013). At this cemetery site, two mixing-lines appear for the men, while the female strontium isotope ratios show no such patterning. A mixing-line represents strontium sourced from different geologies or diets (Montgomery *et al.* 2007). Hence, if a group was using two sources with different values (for example drinking water from one geology and animals feeding from different geology) the values from each individual would fall along a line between the two extreme values of these sources or ‘end-members’. The male community buried at Aiterhofen had, in their childhoods, shared one loess-based end-member, but two further sources of food, one from the loess and one from a more radiogenic soil were being used (Bickle *et al.* 2011; Hofmann *et al.* 2013). This difference does not appear to have arisen in change in mobility over time (see discussion in Bickle *et al.* 2011). For these two mixing-lines to have appeared, therefore, the males buried at Aiterhofen are likely to have largely belonged to the same dietary groups in their childhoods as they did as adults, while the women who do not share such a distinct patterning, had less consistent dietary sources – perhaps indicating that they had not shared dietary sources in childhood and hence originated other settlements in the Aiterhofen area or further afield in the LBK (Bickle *et al.* 2011). Despite this pattern only being seen at Aiterhofen, wider evidence corroborates patrilocal practices. The aDNA data from both Karsdorf and Derenburg, demonstrate highly varied mitochondrial lineages, suggesting patrilocality (Brandt *et al.* 2014; Brown 2014, 169) and patterns of pot decoration styles, particularly the ‘secondary motifs’, have recurrently been interpreted as indicating exogamous practices (Claßen 2009, 100–1).

More recently, however, Bocquet-Appel *et al.* (2014) have criticised the notion that patrilocality was practiced exclusively, arguing that a bilinear model fits more closely with the modelling of the demography of the LBK population and site density, though the details of this analysis are yet to be published. This is worth noting because the strontium data is overwhelmingly gathered from cemetery burials, which may themselves have developed under changing kinship patterns. Cemeteries have a history with the LBK, beginning about the time of the start of the second or developed phase of the LBK. The range of grave goods found with men have a much more strongly sexed profile than those found with females, mainly because of the presence of flint and polished stone tools in male burials (Hedges *et al.* 2013, 378). While the empty spaces in graves may signal that there were as yet unknown organic grave goods we should note (Lenneis 2010b), cemeteries do seem to operate more strongly around patrilocal and, given the correlation between polished stone tools and loess-range strontium isotopic ratios, patrilineal practices (Jeunesse 2003b; Bentley *et al.* 2012; Whittle 2012; Whittle & Bickle 2013).

However, patrilineal practices could well have only been consistent for the second phase of the LBK, as the cemeteries sampled spread across approximately three centuries from ≈ 5300 –5000 cal BC (Whittle & Bickle 2013), and this may have been restricted to a particular section or group of LBK society. As is well known, cemeteries are absent in the regions of the Paris Basin, Hungary and Poland and, although men and women are equally frequently found in settlement burials (Hedges *et al.* 2013, 373), the all but absence of the most strongly male-associated grave goods such as polish stone could speak to other descent practices in these regions (Whittle 2012; Whittle & Bickle 2013). The strontium data for the Alföld region (Eastern Hungary) may support this as men dominate amongst the outliers, but the number of samples remains low (one female, three males from a total of 41 sexed adults analysed; Whittle *et al.* 2013). Other burial practices may also represent alternative forms of social relationships or kinship. For example, cremations, unavailable to strontium analysis, are also present on many cemeteries, grow more frequent towards the end of the LBK and account for approximately 10% of the burial record (Trautmann 2007, 11). Perhaps, as well as regional variation, we could also propose that different kinship systems were practised alongside each other and certainly demonstrate that burial was not a static social arena. Here, therefore, an inter-relationship between mobility and the forms of kinship and social relationships making up LBK life is envisaged of which women moving on marriage is just one of the possibilities (Whittle & Bickle 2013, 391).

CONCLUSIONS

To conclude, three arguments are being put forward here; first, that there is a need to see mobility patterns not as demonstrating particular dietary strategies for the LBK, but rather framed by social life, which could have incorporated kinship as much as food sourcing, second, that the mobility strategies in evidence need to be carefully assessed against the history of the LBK and third, that multiple forms of mobility were practiced in the LBK, at a range of scales. Diet and mobility were closely intertwined in prehistory, however, this should not mean limiting the forms of movement discussed to those defined by farming, herding or hunting. There is a tension between our explanatory faculties for interpreting the datasets that arise and how we use them to reflect critically on a wide-range of different types of evidence. With so many potential patterns of mobility at play across the life of the LBK, on many different scales, it is not enough to end with best fit models; other lives were lived.

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Resourcing Stonehenge: Patterns of human, animal and goods mobility in the Late Neolithic

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In 1136 in the *Historia Regum Britanniae* Geoffrey of Monmouth recounted the story of Stonehenge. In his tale the monument was brought to Salisbury plain as a memorial to the massacre of 460 British lords at the hands of the treacherous Saxon king Hengist (Chippendale 1994, 22; Wright 2007). The monument was brought from Mount Killaraus in Ireland where it had been set up by the Giants who in turn had transported the stones from Africa in the distant past. The story is, of course, fantastical but in one sense this tale about the origin and method of transport of the Stonehenge stones represents the earliest written example of an account of ancient mobility based upon the reading of a Neolithic monument. Needless to say the debate about the potential origin of the bluestones has raged on through the centuries driven by the continued allure of Stonehenge as a prehistoric enigma; an ancient riddle waiting to be solved. What has often been lost amongst the arguing back and forth is that what is really at stake is not whether glaciation was or was not responsible for moving the stones all or part of the way to Salisbury Plain. The more fundamental issue is the scale of mobility and the range of geographical connections that Stonehenge enshrined. The stones of Stonehenge would have presenced particular places, stories and ancestral myths. Bringing them together made a statement about the connections between distant places and made a whole out of a series of geographically disparate parts. Stonehenge then is an excellent starting point from which to discuss Neolithic mobility, but it is only a starting point. As the monument is but one small part of a larger monument complex, so the stones are but one strand in a web of people, animals and things that were brought together in order for Stonehenge to be built and used. All of these strands reveal intricate patterns of movement nested over a series of different scales. This paper will discuss these patterns and the evidence for mobility during what we consider to be the height of activity in and around Stonehenge; that is the mid-third millennium BC. This is the period of Stonehenge Stage 2, when the sarsens were erected (Parker Pearson 2012, 310) – it is also the main phase of occupation of Durrington Walls where we believe the builders of Stonehenge lived.

Our understanding of the extent and scale of mobility around Stonehenge during this period has been transformed in recent times by the findings of the Stonehenge Riverside Project (SRP) and its successor the Feeding Stonehenge Project (Parker Pearson *et al.* 2004; 2006a; 2006b; 2007; 2009; 2011a). The findings of these projects, particularly the discovery of the settlement at Durrington Walls, have provided a new level of detail with

which to understand the character of the inhabitation of the Stonehenge landscape. The following discussion will focus on these findings to investigate the resource provisioning involved in the construction and occupation of the Durrington Walls village and henge and the construction of Stonehenge itself. These two sites indicate the marshalling of huge quantities of resources in the form of materials, food and labour. For many of these resources we have a broad understanding of where they came from, or at least over what kind of range they were gathered. This reveals the movement of things over a variety of geographical scales, some well-defined, some less so. Mobility here is understood in its broadest terms. We are as equally concerned with things that moved 100m as those that moved 100km. One does not necessarily hold greater significance than the other. Rather, understanding of both is required to set in context the great network of Neolithic pathways that had Stonehenge at its centre.

To deal with the varying levels of uncertainty about the exact geographical origins of the things under discussion, they will be described simply as being *local*, *regional* or *distant* (Fig. 3.1). These terms are admittedly subjective and notions of what is local or distant vary in prosaic terms according to ease of access and transport between two points. Culturally,

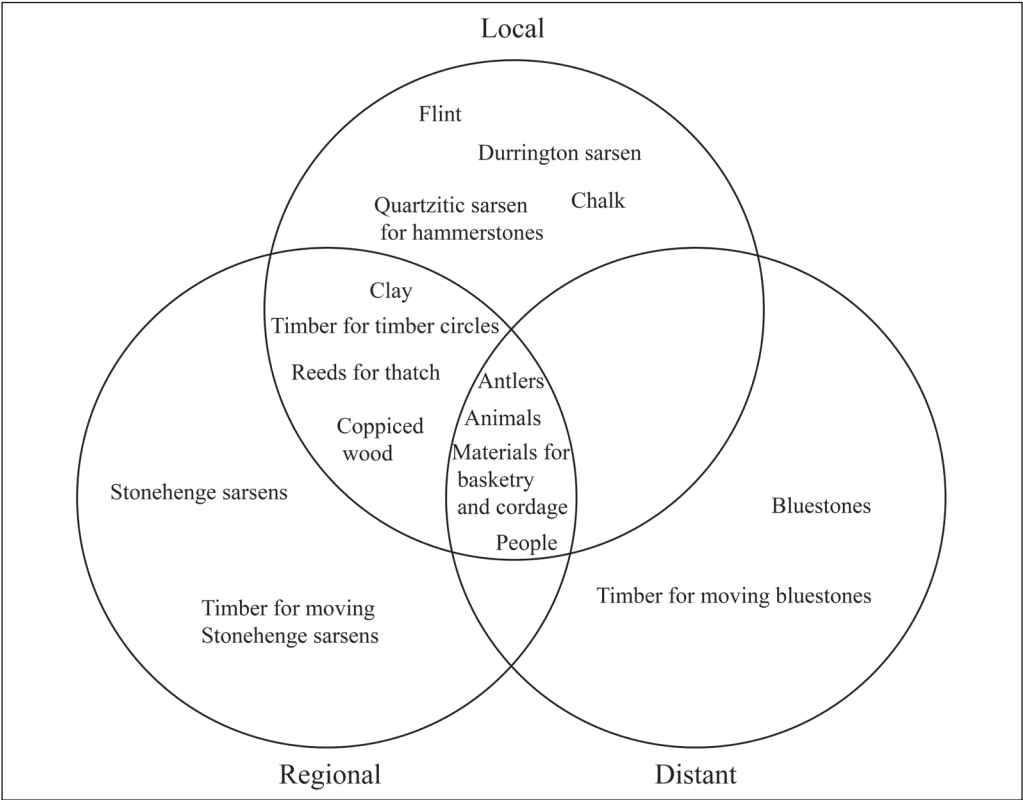


Fig. 3.1: Venn diagram showing the things gathered together at Stonehenge and Durrington Walls and the distances over which they were transported.

notions of what is local and distant are even more complex and in the Neolithic would have been bound up in kinship, ties to land, the need to negotiate access across territories and the degrees of familiarity or exoticism embodied in a place, its people, material culture and its landscapes (Helms 1988). Unpicking these complex issues is beyond the scope of this paper and for the sake of clarity the term *local* will refer to the area of the Stonehenge landscape, *regional* will refer to the area of Wessex, and *distant* to the areas beyond this Neolithic heartland.

Due to the nature of the evidence, this paper incorporates a lot of estimates of the quantities of things present on various sites. These estimates are just that. They are not absolute figures, nor are they intended to provide hard data for the comparison of one site with another. They are simply aimed at providing the reader with a grasp of the sheer scale of the activity that took place in the Stonehenge landscape in the mid-third millennium BC.

THE GATHERING OF THINGS

People

The most important thing gathered in the Stonehenge landscape was of course people. Unfortunately, in terms of direct evidence for the mobility of the human population there is very little to work with. There are no inhumation burials from this period in the Stonehenge landscape. The only human tooth found during the excavations of Durrington Walls was subjected to isotope analysis by the Feeding Stonehenge Project and its $^{87}\text{Sr}/^{86}\text{Sr}$ value (0.7126) indicates that its owner had come from an area off the chalk, most likely the Devonian or Silurian geologies of southwest England or southwest Wales. The few other human bones recovered from Durrington Walls were already worn by the time they were buried and the nature of the journey that brought them to the site is unclear. In the absence of direct evidence, what we are left with is a mass of proxies for human mobility, which all provide varying levels of insight into the routes that things and, by extension, people came to Stonehenge. Using the movement of things as a proxy for human mobility carries a major assumption: that human population movement, rather than indirect trade or exchange, was the mechanism behind their movement. This is a serious statement and one that should not be accepted *a priori*. In the case of the Stonehenge landscape the assumption is justified. The reason for this is the unusual character of activity in the area. At certain times in the later Neolithic the numbers of people in the Stonehenge landscape was unparalleled within Britain (Chan 2011). Moreover the only excavated occupation site in the area, Durrington Walls, has clear evidence for seasonal occupation and its consumption patterns are far from those expected at a permanently occupied settlement (Albarella & Serjeantson 2002; Albarella & Payne 2005).

Stone

Stone was brought to Durrington Walls and Stonehenge for use as both tools and building materials. In terms of tool use, the most common stone was flint. Worked flint occurs across the Stonehenge landscape as both unstratified surface assemblages (Richards 1990; Chan 2003) and as a ubiquitous material in all stratified Neolithic deposits. The work of

the SRP has shown that, in relative terms, flint use in the Neolithic was minimal around barrows, cursus monuments and the smaller timber monuments when compared to its massive use at sites where people gathered together to live, sleep and eat. At Durrington Walls, even within a single monument, the density of worked flint varied considerably. Unquestionably the highest density was found at the east entrance where seven houses and associated middens were found in the area immediately beneath and outside the later henge bank. The Late Neolithic deposits from this part of the site produced an assemblage of 55,900 worked flint artefacts weighing 505kg. The Early Bronze Age buried soil covering the Durrington Avenue produced a further 19,600 artefacts weighing 93kg, the vast majority of which was residual material eroded out of the Late Neolithic deposits upslope from the Avenue. Lastly, there was also over 200kg of burnt flint that was either unworked or had been burnt to a degree that all signs of working had been lost.

The East Entrance represents a tiny proportion of the site and it is believed that the entire area of the settlement buried beneath the 480m-diameter henge could have contained as many as one thousand houses, which may or may not have been inhabited contemporaneously (Parker Pearson 2012, 109). In either case it is clear that if the density of worked flint found at the East Entrance was continued around the circumference of the henge the quantity of worked flint on the site would be truly enormous, perhaps in the order of 2,500,000 artefacts. Practically all of the flint was nodular chalk-derived flint typical of the material from the site's environs. There is very little imported flint or chert within the assemblage. Beyond this there are some questions about where the raw material came from. Within flint-bearing chalkland landscapes it is often assumed that flint was obtained during the digging out of large sub-surface features such as ditches but, in the case of Durrington Walls, we know that the massive henge ditch was dug out after the houses had been occupied. Some of the flint in the assemblage was clearly worked down from weathered surface nodules, but it is unlikely that they would have been available in sufficient quantities (Chan 2009). Perhaps a more realistic origin is the group of small Neolithic flint mines and extraction pits that were found a few hundred metres northeast of Durrington Walls (Booth & Stone 1952). In any case, the flint used at Durrington Walls can be regarded as having been gathered from within the Stonehenge landscape and most probably from as close to the site as possible.

Alongside flint, the other main stone that was in use at Durrington Walls was chalk. This was used to construct the massive banks of the henge and was also used in the form of soliflucted chalk mixed with water to form plaster for the floors of the houses and to make cob and daub for the walls. In terms of volume, chalk was the most heavily used stone at Durrington Walls, with Wainwright estimating that the banks required the excavation of 49,604 cubic metres of chalk (Wainwright with Longworth 1971, 196). The chalk in the banks of Durrington Walls would weigh perhaps ten times as much as all of the Stonehenge stones combined. Of course, the difference is that unlike the Stonehenge stones chalk was generally dug in the immediate vicinity of the place it was to be used. This is the case for the banks of the henge, which were piled up from the adjacent inner ditch, and for the building material for the houses which was excavated from borrow pits located close by.

The most famous stones used for building in the Stonehenge landscape are undoubtedly the sarsens and bluestones of Stonehenge itself. At least 85 sarsen boulders and perhaps as

many as 80 bluestones were required to build Stonehenge (Green 1997). Sarsen was also in use at Durrington Walls with approximately 100kg of it being found in the form of broken and often burnt lumps. This stone may have been used for cooking, but may also have come from the breaking up of stones that previously stood in the stoneholes which lay in a line underneath the surface of the Durrington Avenue. Sarsen and occasionally flint and bluestone was also used for the hammer-stones and mauls used to dress the Stonehenge stones and reused as packing material in the stone-holes. In a 5m × 5m trench within the area of a much larger sarsen dressing floor just north of Stonehenge the SRP recovered 348 cobble-sized hammer-stones. Nine of these were made from saccharoid sarsen, 12 from flint and 327 from quartzitic sarsen. Bearing in mind that Trench 44 covered only a small proportion of a single dressing floor many thousand cobbles would have had to have been collected for the dressing of the Stonehenge sarsens. Both the quartzitic sarsen and flint hammer-stones were made from water-worn cobbles which occur naturally within river gravels in the area. They would have most likely have been collected from river beds and this would have been best achieved during the summer when the rivers were low and the cobbles were more easily visible and accessible.

The origins of the sarsens and bluestones that make up Stonehenge's famous lintels and standing stones has been the subject of extended debate which does not need repeating here (*e.g.* Thomas 1923; Thorpe *et al.* 1991; Green 1997; Scourse 1997; Williams-Thorpe *et al.* 1997; Williams-Thorpe *et al.* 2006; Bevins *et al.* 2011; 2014; Ixer & Bevins 2011). Suffice to say that the bluestones originated in north Pembrokeshire and the Preseli Mountains of southwest Wales and, whilst the glaciation hypothesis continues to have its proponents, the majority of archaeologists currently believe that the stones were brought to the Stonehenge landscape in the Neolithic. The SRP is continuing its work by investigating the potential quarry sites for the bluestones (Parker Pearson *et al.* 2011b). Regardless of the precise quarry location, roughly 80 bluestones weighing two tons or less (Abbott *et al.* 2012, 60) were moved over a distance of approximately 140 miles as the crow flies. The exact route that they took is still a matter of debate (Parker Pearson 2012, 289–91) but would have been considerably longer than 140 miles and, whether by land or sea, it would have been fraught with difficulty and potential danger.

On the basis of the current distribution of sarsen boulders the original source of the roughly 85 Stonehenge sarsens is most likely to have been the Marlborough Downs 32km to the north (Atkinson 1956, 116). If they did not come from there then it is sure that they came from the wider region. An origin in the Stonehenge landscape itself has generally been rejected (*ibid.*). However, the excavations of the SRP at the Cuckoo Stone close to Woodhenge, and the Tor Stone at Bulford on the other side of the River Avon, have shown that sizeable albeit heavily eroded sarsen boulders do occur in the Stonehenge area. Moreover, in both cases these naturally recumbent sarsen boulders were stood up most probably in the Neolithic. The process of turning a boulder into a standing stone perhaps involved the transformation of a stone into an ancestral entity, and reveals the complex connections and histories that individual stones would have had with people in the Neolithic. Even though the distances were much shorter, the moving of the larger sarsens, which weigh as much as 40 tonnes (Richards & Whitby 1997), would arguably have been a greater feat than that of moving the bluestones (Parker Pearson 2012, 292).

Clay

The primary use of clay was for the production of Grooved Ware pottery of which over 12,500 sherds were retrieved from Durrington Walls from both the Ministry of Public Buildings and Works excavations (Wainwright with Longworth 1971, 48) and the SRP excavations combined. Petrography has shown that the pottery was made from clays that would have been locally available along, for example, the course of the River Avon. Yet some fabrics contained fossil shell from Kimmeridge Clay and presumably came from at least 20km away (Ixer & Vince in Parker Pearson *et al.* forthcoming). It is unclear whether the latter was brought to the site as raw clay or as ready-made pots. Certainly Grooved Ware pots were not well-suited in terms of shape or fabric to long journeys. This is supported by the complete lack of non-local/regional tempers within any of the petrographic samples of Grooved Ware from Durrington Walls.

Wood and other plant materials

On the chalklands of Wessex prehistoric botanical remains generally survive only if carbonised. Therefore the recognition of the range of wood and plant materials in use is hampered by a lack of preservation. Despite this there is evidence for a range of wood-use inferred by the presence of stake and postholes and wattle impressed daub. There is also a range of organics that can reasonably be hypothesised to have been used, namely basketry for carrying huge quantities of chalk from the ditch at Durrington Walls and sarsen hammerstones to the dressing floors at Stonehenge, and rope and twine for all manner of tasks.

Starting with the largest first, there was a need to supply massive quantities of timber for the posts of the Southern Circle, the Northern Circle, Woodhenge, the three structures south of Woodhenge, and the palisades for at least two of the buildings within the western enclosures in the centre of Durrington Walls. According to Wainwright's estimates, the Phase 1 structure of the Southern Circle would have required approximately 88 posts with an average diameter of 0.20m (Wainwright with Longworth 1971, 26), whilst Phase 2 required roughly 273 posts with an average diameter of about 0.50m with a few individual posts, such as the entrance posts, being 1.0m in diameter (Wainwright with Longworth 1971, 30, 380). The structure and status of Phase 1 of the Northern circle is far from certain, but the more substantial Phase 2 required four posts of 0.59m diameter and about 20 posts of 0.39m diameter (Wainwright with Longworth 1971, 42–4). Woodhenge would have required a further 156 posts of similar dimensions to those in the Southern Circle (Cunnington 1929, 9). The two excavated buildings of the Western Enclosures were surrounded by 10m diameter palisades with the most complete example estimated to have held roughly 70 posts within 0.20m diameter postholes. The second palisade was of comparable size but the postholes within the excavated area suggested it was not regularly constructed. At least four other pennisular structures form the rest of the Western Enclosures. However, it is not known whether they too were surrounded by palisades. In either case, it is reasonable to envisage that the palisades would have been constructed from over 100 posts, and if all the enclosures contained them, then perhaps over 300. Although the construction of the various phases of the timber circles was spread over a period of at least a century, in total somewhere in the region of 550 posts would have been required to construct them. From the charcoal remains and post-pipe dimensions in the Durrington Walls postholes, it

would seem that many posts were from centuries-old oak trees (Wainwright with Longworth 1971, 32, 354, 378–86). Beyond the timber for monument construction it seems likely that moving the bluestones and sarsens for Stonehenge would also have required considerable quantities of timber for use as either rollers, or for the construction of wooden rails upon which to slide a sled (Richards & Whitby 1997). The amount of timber required for this task is impossible to estimate but, given the number of stones that were moved, the distance involved and the potentially attritional act of moving the heavier sarsens, it is likely that it would have taken hundreds of trees to generate the required quantity of timber.

The sourcing, felling and transport of such a number of trees would have involved considerable effort and certainly the larger trees would have required large numbers of people and potentially draught animals to move. Wainwright estimates that the largest timbers for the Southern Circle would have weighed over five tons and that Phase 2 of the Southern Circle required 260 tons of timber (Wainwright with Longworth 1971, 220). The scale of the task of sourcing this much timber is brought home by the results of the recent palaeo-environmental analysis conducted by the SRP, which revealed that, by the later Neolithic, the chalk downland around Stonehenge was a surprisingly open and established grassland with woodland surviving only in patches on the downland as well as along the banks of the River Avon (French *et al.* 2012). Given the quantity of timber required at Durrington Walls and Woodhenge, it is unlikely that all of the timbers, especially the larger ones could have come from the immediate vicinity of the site. Therefore, timber may have been sourced more widely from across the Stonehenge landscape, along the Avon valley and perhaps from as far away as the Vale of Pewsey 10km to the north. In a similar fashion to the sarsens and bluestones of Stonehenge, the timber for the Southern Circle may have come from trees and woodland that had particular histories and associations with the builders of the timber monuments. The large mature oaks needed for the bigger posts of the Southern Circle would have been important landscape features for generations before they were felled and dragged to Durrington Walls. The significance of this act may have had more to do with the importance of a particular tree than the need to have a post of a certain size to fit the monument's architectural form. In this sense, it would be wrong to assume that timber was sourced as locally as possible to minimise difficulty in transporting it. We should perhaps consider whether some of the timber, like the bluestones, came from distant parts of Britain with different posts being brought by different kin groups. Within the Stonehenge landscape, given the patchy covering of the existing woodland, the cutting down of huge numbers of trees for the timber circles may have dramatically altered parts of the landscape potentially clearing entire areas of woodland.

In addition to the large timbers required for monument building, a huge number of stakes were required for the construction of houses and fences such as that around House 851. The number of stakes required for individual houses varies considerably. The most complete examples – Houses 851 and 547 – were made using an estimate of 40 and 23 stakes respectively. If we assume that the estimate of one thousand houses in the Durrington Walls settlement is correct, then perhaps 30,000 stakes would have been required for constructing the walls of the houses. The walls would have been completed by the addition of wattle and daub. The wattle would have required thousands upon thousands of straight roundwood stems, which are most likely to have come from coppiced stools. Although this material

could certainly have been produced within the Stonehenge landscape there is no definitive way to know where it came from. In either case, the woodland would have required long-term management with individual stools taking several years to produce wattle of suitable length and diameter.

In addition to wood, other plant materials were required for a variety of tasks. The most obvious of these was making baskets, twine, rope and thatch. Baskets – or potentially hide containers – would have been needed in huge quantities for shifting chalk from ditches up onto the enormous banks of Durrington Walls, and presumably were also required to shift thousands of hammer-stones from riverbeds to the sarsen dressing floors at Stonehenge. Twine would have been used in a range of construction activities including binding bundles of wattle for transport and securing thatch for roofing. Rope – which could also be made out of hide strips – would have been essential both for transporting and erecting the large felled trees for the timber circles and the sarsens and bluestones of Stonehenge. In the absence of suitable preservation conditions for these organic materials on Salisbury Plain, the exact species used is unknown but the discovery of a length of honeysuckle rope associated with a timber upright at the Early Bronze Age site of Seahenge (Brennand & Taylor 2005) indicates what was used for dragging large timbers around 2050 cal BC in Britain. Other materials for basketry and cordage can, to a certain extent, be extrapolated from waterlogged Neolithic sites across Europe and from ethnographic examples of plant use in temperate environments (Hurcombe 2000). The most likely materials for thatching of roofs was reeds, whilst those for basketry and cordage are much more varied and include reeds, rushes, nettles, flax and bast from willow, lime and other trees (Taylor 1998, 157; Hurcombe 2000; 2007; 2008; van Gijn 2010, 85–9). The source of these materials is unknown and their natural habitats are varied. Of all the aforementioned species only flax is a cultivar, but the remainder should not be seen as ubiquitous or not requiring management just because they are wild species (Hurcombe 2000, 167). The quality of raw material available from these plants depends greatly on the time of year they are harvested and the conditions in which they grow. For example, nettles grow across a wide range of environments, but vary greatly in height according soil, moisture and light. As a result, good nettle patches may have represented highly valued resources (van Gijn 2010, 89). Nettles, reeds, rushes and flax are all at their highest towards the end of the summer; this is also a good time for harvesting as they require drying out to prevent them rotting (Hurcombe 2000). In contrast, tree bast is best removed during spring and early summer when the sap is rising (Taylor 1998, 129; Hurcombe 2008, 87). The appropriate time of harvest may also be affected by the tasks that plants were to be used for. This is most clear for reeds, which would be best harvested for basketry in the summer when they would be strong and flexible, and for thatch – a use for which brittleness is of no significance – have historically been harvested in winter as, by this time, their leaves would have fallen, thereby making processing easier (Hurcombe 2000, 168). It is likely that the procurement of these various plant materials would have been embedded within the scheduling of other tasks. The potentially varied time scheduling may also suggest that some of these tasks took place outside of the principal gathering times of midwinter and midsummer. This has implications for the range over which these resources would have been gathered, particularly as these materials are relatively easy to transport. As a result, it should be considered whether some of them were gathered and

processed within the diverse parts of Britain from which people journeyed to Stonehenge. This is certainly the case for the ropes and potentially for the wooden rails or rollers that would have been involved in the actual transport of the stones to Stonehenge.

Livestock

The faunal assemblage from Durrington Walls is dominated by pig remains, with cattle bones second in abundance. The huge animal bone assemblage from Durrington Walls (that produced more than 20,000 recorded specimens from Late Neolithic contexts alone) has provided ample variety of pig and cattle body parts, indicating that entire carcasses were present on site, and presumably that live animals were driven there on the hoof. The almost complete lack of neonatal bones is indicative of the fact that Durrington Walls was not a rearing centre, but rather a site where animals would be gathered from different areas. Distinctive patterns of butchery and burning give the impression that meat was often roasted on the bone over fire, and that bones were frequently discarded before they had been fully exploited (Albarella & Serjeantson 2002). Age at death analysis using pig teeth has highlighted a peak in the slaughter of animals during the late autumn and winter, and suggests that feasting activity was most intense at certain times of the year. In order to understand the mobility of the animal population, isotope analysis was conducted to identify direct evidence of the movement of animals. Both strontium and oxygen isotope analyses are well established methods in the investigation of animal and human movement (Balasse *et al.* 2002; Bendrey *et al.* 2009; Bentley 2006; Bogaard *et al.* 2013; Britton *et al.* 2009; 2011; Evans *et al.* 2007; Henton *et al.* 2009; Hoppe *et al.* 1999; van der Jagt *et al.* 2012; Julien *et al.* 2012; Minniti *et al.* 2014; Sykes *et al.* 2006; Towers *et al.* 2010; 2011; Viner *et al.* 2010), and have been used repeatedly to investigate prehistoric assemblages in Europe. As part of this study 47 cattle teeth from Durrington Walls were sampled for strontium isotope analysis, and 53 were used for oxygen isotope analysis (due to the inclusion of a number of specimens that were previously used for strontium isotope analysis; Viner *et al.* 2010).

The results of Sr analysis exhibit a very broad distribution ranging from 0.708105 to 0.716804. This range encompasses both the lowest and highest values that can be expected based on British geology. In addition, the majority of the specimens (more than 80%) produced strontium values that fall outside of the expected chalkland range of the Stonehenge landscape. Overall, the results suggest variable and non-local origins for many of the Late Neolithic cattle found at Durrington Walls. The lowest $^{87}\text{Sr}/^{86}\text{Sr}$ values from cattle at Durrington Walls are consistent with animals that spent the early years of their lives on chalk. It is possible that six animals with values between 0.708 and 0.709 were raised close to Durrington Walls, but the kind of geological conditions that could produce such results can also be found elsewhere in southern Britain and along the east coast as far north as Yorkshire. Therefore, a more distant origin for this group of animals cannot be ruled out on the basis of the strontium data. All of the other specimens included in this study produced $^{87}\text{Sr}/^{86}\text{Sr}$ values that are too radiogenic (*i.e.* too high) to have originated in the chalk downlands of Wiltshire on which Durrington Walls is located. A large number ($n = 18$) fall into the problematic 0.709 to 0.710 range, with the result that they could have originated from large swathes of Britain, from areas relatively close to Durrington Walls, to parts of the country many kilometres away.

The strongest evidence of long distance cattle movement comes from the remaining specimens, all of which produced $^{87}\text{Sr}/^{86}\text{Sr}$ values that are too high to have originated from grazing in the vicinity of Durrington Walls. Seventeen specimens from Durrington Walls produced $^{87}\text{Sr}/^{86}\text{Sr}$ values between 0.710 and 0.713. Such high values exclude the southern British chalklands, as well as much of southern, central and eastern Britain as sources for this group of cattle. The nearest possible origin for these cattle lies to the west of the study area in Cornwall and Devon, but could also suggest parts of Northern England or Scotland. The final six specimens produced $^{87}\text{Sr}/^{86}\text{Sr}$ values of 0.713 and above. These are perhaps the most intriguing results to date, as the values are unusually high for those currently known from Britain. Small patches of Scotland could produce such high values, raising the possibility that Durrington Walls had links with the far north. Alternative sources that are much closer to the study area are the Malvern Hills (Montgomery *et al.* 2006) or a few other outcrops with pre-Cambrian rocks present in the English Midlands. More work is, however, needed to refine the distribution of $^{87}\text{Sr}/^{86}\text{Sr}$ in this area, and determine whether animals with high $^{87}\text{Sr}/^{86}\text{Sr}$ values could have also originated from central England.

Fifty-three cattle teeth were used for oxygen isotope analysis. As with the data from strontium isotope analysis discussed above, cattle from Durrington Walls produced very variable $\delta^{18}\text{O}$ data ranging from a low of 23.09 to a high of 27.38. A large group consisting of 19 animals produced at least one sample with oxygen isotope values of more than $\delta^{18}\text{O}$ 26.00, and three specimens had values in excess of $\delta^{18}\text{O}$ 27.00. High $\delta^{18}\text{O}$ values are suggestive of origins in the west of the country. In fact, oxygen isotope values in cattle tooth enamel higher than 26.0 have been used by other researchers to suggest an origin in the west of Britain (Towers *et al.* 2011). If $\delta^{18}\text{O}$ values above 26.0 are taken as indicative of westerly origins then around 30% of the Durrington Walls specimens have at least one value that could suggest an origin towards the west of Britain, and a relatively small number of specimens have low values that would be indicative of time spent to the east of the study area.

Antler

The other common organic material in use was red deer antler, which was used to make picks for prying apart blocks of chalk. A total of 440 picks were retrieved from Wainwright's excavations (Wainwright with Longworth 1971, 185), with a further nine antlers, and many more fragments, found by the SRP. Wainwright's excavation produced a significantly larger number due to the areas of the site he excavated, principally the massive ditch of the henge. A single 34.1m length of ditch from the east entrance produced 74 antler picks, 57 of which were found in a single huge pile, presumably resulting from a rite commemorating the conclusion of the digging of a ditch segment (Wainwright with Longworth 1971, 187). Once again, the antler assemblage has been derived from the excavation of a tiny proportion of the site as a whole. Given the enormous volume of chalk removed to excavate the henge ditch, thousands of antlers would have been required. Roughly 91% of the antlers from Wainwright's assemblage were naturally shed (Wainwright with Longworth 1971, 185). Although it is hard to say over what range they were collected it seems likely that they could not all have come from the Stonehenge environs.

DISCUSSION

It has been shown that a vast array of materials, people and animals were gathered together in the Stonehenge landscape during the mid third millennium BC. Many of these things clearly moved over considerable distance, but crucial questions remain over the exact form of residential mobility in the area at that time. Were most of the people at Stonehenge part of a permanently resident population? Alternatively, was there a small local population that was supplemented by huge numbers of incomers who came to build the great monuments at Durrington Walls and Stonehenge? If the latter was the case, did people come and go from Stonehenge seasonally, annually or did they come for periods of several years at a time?

We have the means to address these questions, even if not conclusively. Firstly, the mortality patterns from the animal bones at Durrington Walls suggests that massive feasting episodes took place there in winter (Albarella & Payne 2005) with more recent work suggesting a much lower level of consumption throughout the year (Wright *et al.* in prep). The site therefore has a population that fluctuated seasonally. The question is whether the larger aggregations involved people gathering from within the Stonehenge landscape, or from across large parts of Britain. The possibility of large populations living elsewhere in the Stonehenge landscape is suggested by the density of surface lithic scatters across large parts of the landscape although the chronology of this material is admittedly imprecise (Richards 1990; Chan 2004). Conversely, the possibility that the celebrants at Durrington Walls were gathered from a wider area is suggested by the range of materials already listed that were brought in from elsewhere and by the high proportion of cattle that isotope analysis indicates were reared off the chalk. The crucial question is whether these things were traded into the area or brought by people aggregating at Stonehenge. The latter seems most likely for a number of reasons. Firstly, the scale of endeavour involved in the movement of the stones to Stonehenge from the Marlborough Downs and from north Pembrokeshire makes it unlikely to have been part of an organised trade.

Second, the analysis of strontium isotopes suggests that as many as 80% of the cattle were reared off the chalk. This would be highly unusual if the cattle had arrived at the site through trade in which case one would expect a much stronger representation of local cattle. Evidence of likely traded cattle comes from Early Bronze Age burial mounds at Irthlingborough and Gayhurst in the English midlands where strontium isotope analysis of different sections of tooth enamel showed that two animals were grazed on non-local geologies before spending their last year or so on geology consistent with that part of the Midlands (Towers *et al.* 2010). Analysis of multiple samples in some of the Durrington Walls cattle shows that, in contrast, many of the animals moved relatively directly from their region of origin to the chalklands before being slaughtered, suggestive of mass droving rather than trading of animals.

Third, if all or any of these things were traded into the Stonehenge landscape it is entirely unclear what was exchanged in the other direction. There are plenty of commodities that could be traded that would be invisible in the archaeological record, such as foodstuffs and other organic materials, but none seem likely to have been available in the kinds of quantities that would have justified the massive quantity of things that flowed into the Stonehenge environs.

As a result, it is argued here that, whilst there presumably was a population local to Stonehenge, the project of building and celebrating at Stonehenge and Durrington Walls was one that drew people in from a much wider hinterland which spread far across Britain. The patterns of movement of materials and animals listed above reflect the composition and origins of this wider community. Having addressed, to some extent, where the people came from we now need to ask when they were coming. The seasonality data from Durrington Walls has already been addressed and the solstitial alignments at both Stonehenge and Durrington Walls make mid-winter and mid-summer likely aggregation periods. We also know that periods of activity could be relatively short-lived, with the Bayesian modelling of radiocarbon dates from the east entrance showing that this part of the settlement was occupied for less than 45 years (Parker Pearson *et al.* 2013). How much less we cannot say but it may not have been more than a decade or so. Whether or not people came to Stonehenge for concentrated bursts of construction activity staying for a few years at a time with lulls in between, or whether they came more steadily on a seasonal basis year on year over many decades is not possible to know on current evidence. Perhaps one avenue to consider is whether some of the more distant parts of Stonehenge's hinterland could practically be journeyed to and from, perhaps twice, in the course of a year given that those people would also have needed to conduct a wide variety of other subsistence and maintenance tasks. In the case of some of the furthest areas suggested by the isotope analysis, such as Devon, Cornwall and potentially Scotland, this does not seem possible. However, we should not assume that all groups visited the Stonehenge landscape with the same frequency or for the same duration.

In addition to where from and when, the other fundamental question is who was gathering at Stonehenge? As previously mentioned, the lack of unburnt human remains makes this a difficult question to answer although strontium isotope analysis of cremated bone may well be possible in the near future as a method of investigating mobility (Schulting pers. comm.). One other means of understanding who came to Stonehenge is offered by the assemblage of arrowheads from Durrington Walls. There are approximately 300 oblique arrowheads from SRP excavations at Durrington Walls and roughly 80 fragmentary or otherwise unidentifiable examples. These arrowheads are made from local flint and there is good evidence that they were produced on site. Despite all being of the same type, one of the most striking aspects of the assemblage is the great spectrum of skill levels represented in their manufacture. Metrical analysis of the weight and length of arrowheads has revealed a distinct portion of outliers in the assemblage which represent the thickest examples, many of which would not have functioned effectively as projectile points. These arrowheads have similar traits all reflecting a fundamental lack of understanding of the basic principles of flint knapping from the beginning to the end of the *chaîne opératoire*. Their character is such that it is clear that they were made by highly inexperienced flintknappers that were learning the rudiments of the craft, perhaps by observing more skilled hands at work. Whilst, these people need not necessarily be children, they were inexperienced and therefore by extension are likely to have been young. This is important because it suggests that there was a wider population present at Durrington Walls than just the adult population required to build monuments. Indeed the level of support that the builders of the monument required was such that it is likely that entire communities aggregated at Stonehenge and Durrington Walls during its busiest periods.

CONCLUSIONS

There is a great deal we can tell about the extent of mobility of the people that built and used Stonehenge in the mid-third millennium BC. Geographically some of the information lacks resolution, but it all serves to provide insight into the scale of the feats that were involved in building the last great communal monuments of the Neolithic. These were busy times; alongside the large construction events there were also great feasts and ritual observances. Although the nature of these individual events may have differed, they took place against a backdrop that was perhaps more constant. Flint knapping, potting, plant and hide processing, basketry, rope making and a countless number of other tasks would have taken place at Durrington Walls, and potentially other sites in the area, during all major gatherings. The exact choreography of these tasks is hard to assess but it seems likely that whilst some were involved in monument construction, others would have been preparing food or collecting the vast array of resources required. The time scheduling of some of these activities is critical to understanding this choreography. Particularly for plant materials, there would have been limited times of the year when the plants could be harvested and processed and these times may have been different according to individual tasks. As suggested, some of these activities may also have taken place in other areas outside of the Stonehenge landscape. People were probably involved in collection and processing activities across large parts of southern and western Britain throughout the course of the year in order to facilitate periods of large-scale construction in the Stonehenge landscape. The logistics involved in this endeavour would have been extraordinarily complex and would have drawn upon a deep understanding of the appropriate ways to manage, harvest and process a wide variety of plant resources and the best locations from which to gather antlers and hammer-stones. The choice of which trees, sarsen boulders and bluestone outcrops to select for monument construction also relied on an equally deep knowledge. It is important to realise that, from the making of a humble basket to the construction of enormous post and stone settings, none of the practices were new. They had all been used for many centuries in one way or another. What was new was the manner in which they were combined. This is well-understood for Stonehenge, which is famous for combining existing techniques of wood working, stone dressing and stone construction into a unique architectural form. It is, however, equally true of the invisible organisation behind this construction which involved the collection of massive amounts of resources and the movement of materials, animals and people across large parts of Britain. Although it is the monuments which continue to capture our imagination, it should be remembered that it was the physical practices involved in bringing it into being and subsequently using it that would have transformed Neolithic society.

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Movement and thresholds: Architecture and landscape at the Carrowkeel-Keshcorran passage tomb complex, Co. Sligo, Ireland

Sam Moore

The Carrowkeel-Keshcorran passage tomb complex is one of the four principle passage tomb complexes in Ireland; the others being *Cúil Irra*, also in County Sligo (Knocknarea, Carrowmore Cairns Hill); Loughcrew and the Boyne Valley, both of which are found in County Meath. Elements of architectural design and landscape setting at these passage tomb clusters contain concepts of crossing physical and symbolic thresholds. The positioning of passage tombs in landscape settings such as mountain tops, prominent ridges or locations overlooking important river systems appear to be deliberate acts by the Neolithic architects. Landscape features common to many passage tombs clusters include relationships with water that may suggest movement along, or movement across. Other features that many passage tombs possess is that they contain architectural devices that control movement into and through the monument (Thomas 1990; 1992) along with a system of physical and symbolic concentric spaces, both internally and externally, and a series of thresholds (Robin 2009; 2010). This paper examines mobility across liminal zones in the Irish passage tomb tradition in general and at the Carrowkeel-Keshcorran passage tomb complex in particular.

Within the context of mobility in the Neolithic a number of scholars have examined movement in association with various ritual monuments and landscapes (*cf.* Cummings & Johnston 2007a). Tilley's phenomenological approach to movement is of interest here, where "a spatial order of walking can be characterized in terms of an order of possibilities – various ways in which an actor can move, and a series of restrictions. ... Through movement parts of the system – paths or places – are ignored ... while others are activated through use or presence" (1994, 29). With this in mind, the perception of monuments and how Neolithic people may have engaged with them can be restricted and controlled by the monument's position in the landscape. Natural routeways and possible associations with natural features may have directly or indirectly influenced location preferences for some of the passage tombs and cairns within the Carrowkeel-Keshcorran complex, along with approaches to them. Before and after their construction, access to some of the monument's positions necessitated arduous ascents with restricted approaches and movement around the site due to topography (ravines, cliffs, sinkholes, lakes *etc.*). Mobility and the body's movement in this landscape has raised the possibility that many facets employed in the siting and architecture of the passage tombs appear to incorporate the physical and symbolic

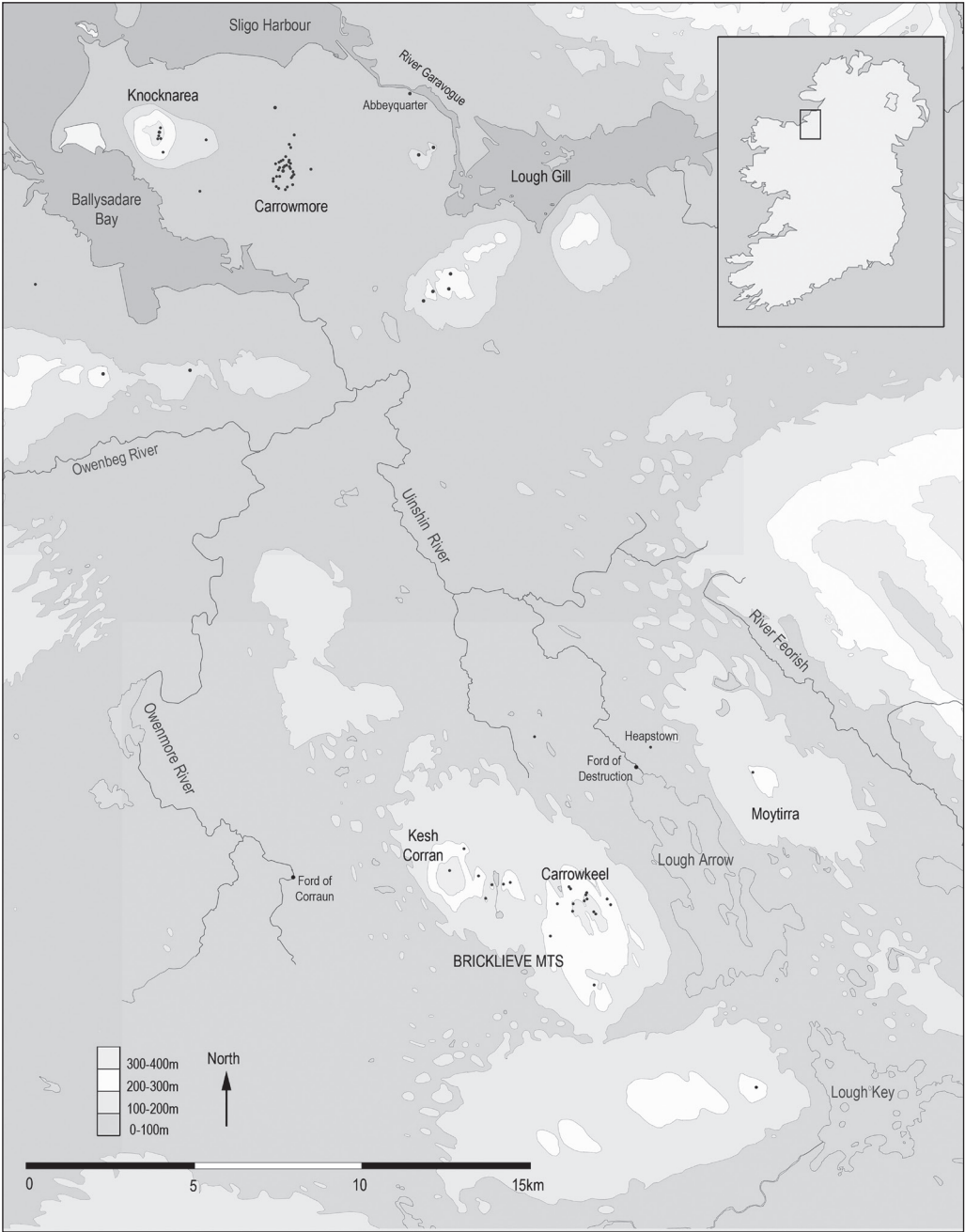


Fig. 4.1: Map of Carrowkeel-Keshcorran showing important rivers and proximity to the Cúil Irra region to the north as well as the location of the fords east and west of Carrowkeel-Keshcorran.



Fig. 4.2: Aerial view of the main cluster of passage tombs at Carrowkeel. Image courtesy of the National Monuments Service, Department of Arts, Heritage and the Gaeltacht.

aspect of crossing thresholds. This feature is not found just within the architecture of the monuments but also within the landscape. Many people on foot who wished to visit the domain of the ancestors at Carrowkeel-Keshcorran would have had to cross one of two fording points at key locations east and west of the complex or traverse the Curlew Mountains to the south, while movement to the north, towards the *Cúil Irra*, complex may have followed the Owenmore or Unshin River systems (Fig. 4.1). To reach the passage tombs meant ascending to the summits, crossing through doorways and across sill-stones into the dark central chambers of the monuments where the ancestral remains were present.

THE CARROWKEEL-KESHCORRAN PASSAGE TOMB COMPLEX – AN OVERVIEW

The passage tombs of Carrowkeel-Keshcorran are located in the Bricklieve Mountains in south-east County Sligo, Ireland, which cover an area of $\approx 25\text{km}^2$. They are arguably the most dramatically located out of most Irish passage tombs due primarily to the physical and geo-chemical processes over immense time periods that have given this karst landscape its highly distinctive and dramatic form (Fig. 4.2). The range is to the west of Lough Arrow, which is drained by the north-flowing River Unshin; east of the Owenmore River and the drumlin ridges of the Plains of Corran, and north of the Curlew Mountains. To the

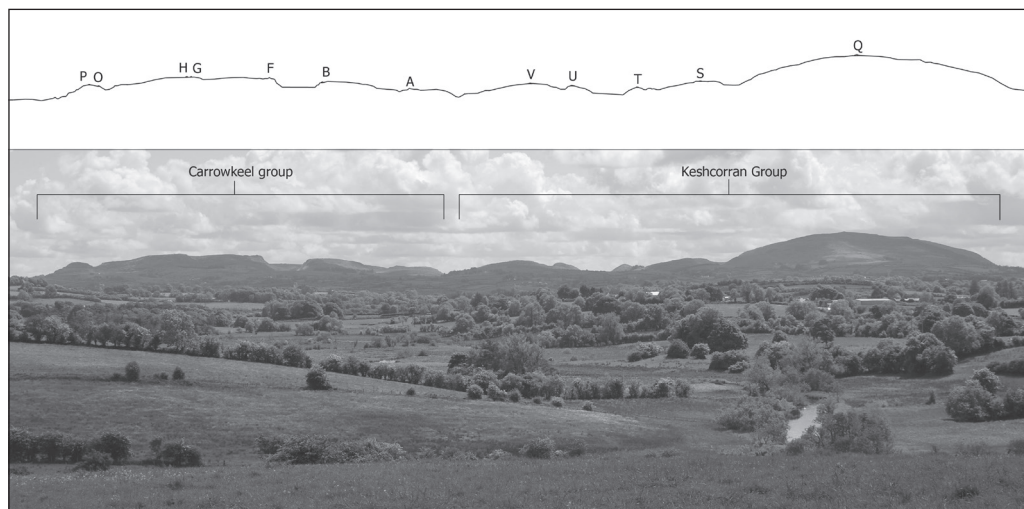


Fig. 4.3: View of the Carrowkeel and Keshcorran groups looking south from the River Unshin with profile view indicating cairn names above.

north, located between the Owenmore and Unshin Rivers, lies a drumlin belt interspersed with fens and peat-land, and to the northwest is an area of limestone upland. Due to the karstic formation of the mountains, features such as erratics, dolines, sinkholes, springs, relict caves and small streams occur. The Bricklieve Mountains can be separated into two topographical zones, which consists of two grouping of cairns; the Carrowkeel group and the Keshcorran group (Bergh 1995, 46–7) (Fig. 4.3; Table 4.1).

The eastern group is dominated by fifteen cairns at Carrowkeel with the highest point being at Cairn L (321m OD), while the other cairns in this group range between $\approx$ 250 to 320m OD. The prehistoric settlement of Mullaghfarna occupies the most eastern ridge where $\approx$ 153 hut structures are located on a limestone plateau (Bergh 2006). The western group is made up of five hills with the western most being Keshcorran Mountain with cairn Q on its summit standing at 359m OD. The remaining hills range between $\approx$ 240 to 210m OD. This western side contains seven cairns, and lacks the cliff walled rifts of the east side of the range and its limestone hills are more rounded, but are still considerably prominent when viewed from the north (Fig. 4.3). Two solitary ringed cairns, cairn Y and cairn Z, appear isolated in many respects from the other groups.

There are a total of 25 passage tombs and cairns within the complex and eleven of these have identifiable chamber plans, with three other cairns having internal megalithic structures visible within them. All but two of the 25 monuments (cairns Y and Z) have a preference for being located on the north end of the ridge or hill they occupy. Many of them appear to reflect an “ideological communication” between Carrowkeel and the *Cúil Irra* group of passage tombs: Knocknarea, Carrowmore and Cairns Hill, which are located $\approx$ 25km north northeast of Carrowkeel (Bergh 1995, 162). A further 28 prehistoric monuments occur within the core study area (court tombs, a wedge tomb; unclassified

Table 4.1: Carrowkeel group, Keshcorran group and outlying passage tombs

<i>Name</i>	<i>Townland</i>	<i>Classification</i>	<i>Type</i>
<i>Carrowkeel Group</i>			
Cairn A	Tully	Cairn (kerbed)	Covers outcrop
Cairn B	Treansrabbagh	Passage tomb	Undifferentiated
Cairn C	Carrowkeel	Passage Tomb	Cruciform
Cairn D	Carrowkeel	Passage tomb (poss.)	Undifferentiated (?)
Cairn E	Carrowkeel	Passage tomb	Cruciform
Cairn F	Carrowkeel	Passage tomb	Transceptal (5 chambers)
Cairn X	Carrowkeel	Passage tomb (poss.)	Unknown
Cairn G	Carrowkeel	Passage Tomb	Cruciform
Cairn H	Carrowkeel	Passage tomb	Undifferentiated
Cairn K	Carrowkeel	Passage tomb	Cruciform
Cairn L	Carrowkeel	Passage tomb (poss.)	Unknown
Cairn M	Carricknahorna East	Passage Tomb	Cruciform
Cairn N	Carricknahorna East	Passage Tomb	Cruciform
Cairn O	Doonaveragh	Passage tomb (poss.)	Undifferentiated
Cairn P	Doonaveragh	Cairn (kerbed)	Covers four boulders
Cairn Y	Carricknahorna West	Ringed cairn	Unknown
<i>Keshcorran Group</i>			
Cairn Q Pinnacle	Drumnagranshy/Murhy	Passage tomb (poss.)	Unknown
Cairn R	Carnaweelan	Passage tomb	Undifferentiated
Cairn S	Treanmore	Cairn (kerbed)	Unknown
Cairn T Sheecor	Treanmore	Cairn	Unknown
Cairn U	Treanmacmurtagh	Cairn	Long cist?
Cairn V	Treanmacmurtagh	Passage tomb (poss.)	Cruciform?
Cairn W	Treanmore	Cairn	Unknown
Cairn Z	Murhy	Ringed cairn	Covers outcrop?
<i>Outliers</i>			
	Ardloy	Passage tomb	Cruciform?
Suigh Lughaidh	Barroe North	Passage tomb	Unknown
Carn Ochtriallach	Heapstown	passage tomb (poss.)	Unknown

megalithic tombs and barrows of various forms). Three outlying passage tombs occur at *Suigh Lughaidh*, Heapstown and Ardloy. Our primary knowledge about the complex stems from Macalister, Praeger and Armstrong's excavations there in 1911, when, over a period of

16 days during April, June and October, they excavated nine of the passage tombs within the Carrowkeel group (Macalister *et al.* 1912). Two of the cairns they excavated covered boulders rather than having chambers (cairns A and P), while the remaining seven cairns were cruciform or undifferentiated passage tombs with assemblages of pendants, beads, pins, Carrowkeel Ware pottery, rounded stones, cremated and unburnt animal and human remains. The limited dating evidence suggests activity of c.3200–2900 cal. BC, and also indicates secondary use during the Bronze Age. Details of dates, pollen analysis along with other research since the 1911 excavation has been summarised and discussed by Hensey *et al.* (2014).

BOUNDARIES AND THRESHOLDS

At the end of the nineteenth century Clay Trumbull's (1896) analysis of threshold rituals detailed many examples of the use of thresholds associated with ritual actions in a wide variety of contexts. Hertz (1960) also identified threshold rites and rites of transition, but it was another *L'Année Sociologique* group member, Arnold Van Gennep, whose book on rites of passage observed patterns in ritual that stressed the importance of physical and symbolic thresholds indicating various forms of transition: as the subject, the temporal and the spatial (Van Gennep 1960; Thomassen 2009). The human life-cycle, such as birth, coming of age, marriage, parenthood and death, along with temporal transitions, such as night/day or seasonal changes within the agricultural cycle are also seen as transitions across boundaries (Van Gennep 1960). Van Gennep's use of the concept of liminality, and its development by Victor Turner (1967; 1969), are central tenets to understanding rites of passage (Ellis Davidson 1993; Garwood 2011). The three-fold division found in rites of passage, comprising rites of separation (pre-liminal), rites of transition (liminal) and rites of incorporation (post-liminal), have the potential of being utilised in archaeology to explore ritual process; even if we consider the flaws within Van Gennep's and Turner's approaches (Grimes 2002, 103–7; Garwood 2011, 262–4).

The articulation of space is carried out by its division through the creation of boundaries and the act of marking neutral space possesses symbolic meaning where place can be controlled and classified (Lefebvre 1993, 141; Parker Pearson & Richards 1994, 24). A boundary can involve various conceptual categories ('Us'/'Them'; domestic/wild; human/animal; living/dead) and can be a product of social and physical landscapes, both real and imagined, with varying degrees of porosity (Mullin 2011a). Boundaries mark the extent of these landscapes in various ways: mentally, figuratively, symbolically or physically; and their 'boundedness' encloses, limits or curtails movement within and without; thus creating containment and creating an extent of ownership or affiliation (Richardson 1993, 92; Bradley 2011, xvi–xx). Their negotiation often involves complex social action, through ritual, due to the high levels of symbolic meanings that societies invest in these liminal or 'non-places' (Dowling 2006, 16). Both thresholds and boundaries can be interchangeable; a sealed entrance becomes a boundary, while an open entranceway becomes a threshold and this can determine routes of access, egress or an alternative movement.

Temporal and spatial boundaries are times and places where the supernatural might be perceived as intruding into this realm and are “abnormal, ambiguous, timeless, at the edge, sacred” (Leach 1976, 35). Defining space through the use of physical or conceptual boundaries creates order out of chaos where points of transition are often given prime importance in order to control potential dangers or protect against pollution (Parker Pearson & Richards 1994, 21–5; Smith & Brookes 2001, 6–7). Moving along pathways and passing across boundaries that lead towards a ritual focus is a key element in religious architecture (Barrie 1996; Humphrey & Vitebsky 2003, 128–43); where the crossing of thresholds may cause a sense of looking forward and backward in time, thus creating memories and expectations formed during the event and experience of the crossing (Szakolczai 2009, 147). This can also be the case where ritual boundaries can be invisible, such as at sacred groves and earth-shrines (Hagberg 2006). The presence of thresholds within the architecture of many prehistoric monuments could be related to special event cognition and the forming of memories through a series of boundaries in sacred space. Within the field of experimental psychology Radvansky (2010; 2012) found that walking through doorways (*i.e.* across thresholds) causes forgetting, where memory is disrupted; but at the same time memory is boosted due to the processing of the spatial shift; thus walking through doors causes remembering. This work, what he terms “crossing the event horizon”, is not fully understood and the area of event cognition is still in a formative stage (Radvansky 2012, 271). Events, such as rites of passage and the crossing of thresholds, seem to have an important role to play in the formation of memory.

PASSAGE TOMB ARCHITECTURE AND THRESHOLDS

The architecture of Irish passage tombs has been examined in considerable detail (*e.g.* Herity 1974; Eogan 1986; Robin 2009) and it has been noted that there is a clear division between an inside and outside. Their presence altered the earth through a transformation of space which impacted considerably on the landscape and how the monuments were perceived (Bradley 1993). Passage tombs’ passage and chambers are below an artificial cairn or mound, and form a link between above ground and below ground. The dead ancestors are contained in a position between two worlds (Garrow *et al.* 2005, 254), hence they potentially represent a sacred centre or *axis mundi* and represents the community in a similar way to how a dwelling stands for the household (Richards 2013b, 80–1). The architecture at many passage tombs in Ireland wrap the monument in a multiplication of bounded spaces, which must be crossed to gain access to the central chamber (O’Sullivan 2012, 14). Passing stone settings outside the entrance of a passage tomb entrance (Bradley 2002; Eogan 1986, 46–65; 179–80), the crossing of a kerbstone at an entrance such as at Knowth, Dowth and Newgrange and the various thresholds along the passage that were encountered (Eogan 1984; Robin 2010) can all be linked to a narrative of journeying to the ‘otherworld’ or another form of mythical narrative associated with ancestor worship.

Guillaume Robin’s work on passage tomb art (2008; 2012, 150–4) has clearly recognised spatial structures and symbolic systems in Irish and British passage tombs (*cf.* Robin 2010; Bradley 2012, 102–112). He notes how the tumuli mounds regularly had several

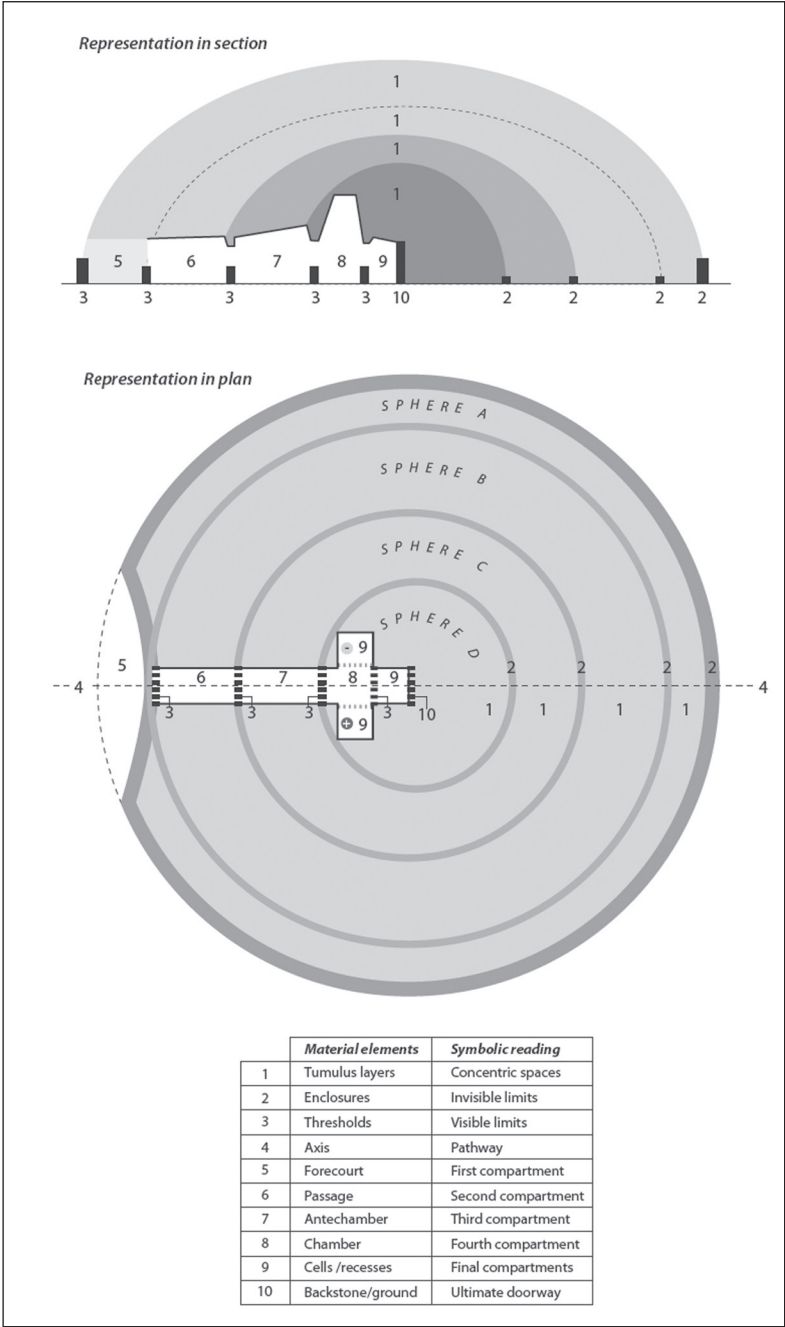


Fig. 4.4: Robin’s model of an ideal passage tomb with representation of spatial structures and symbolic systems (after Robin 2010, figure 29).

super-imposed layers and a series of concentric spaces organised around the chamber of the tombs that were invisible (contained within the mound) or visible (physical thresholds inside or enclosing the mound) (Fig. 4.4). Many examples of particular motifs (scalariform signs) occurred at these visible or invisible thresholds (*ibid.* 384–94.). He also identified the importance of doorways and symbolic doorways where, combined with other systems within the monuments, represent the “mythological geography of the underworld” (*ibid.* 414; cf. Richards 1992). Colin Richards (2013a, 16–23) introduced the notion of wrapping Late Neolithic monuments by identifying recurring architectural elements that appear to enclose. The possibilities of wrapping include concealment, protection, containment, unification and re-presentation. The covering cairn and topographical location of many passage tombs fits into his idea that the skins or membranes, that bind monuments physically, contain and conceal, but also advertises and draws attention to that being concealed (*ibid.* 17). Through the penetration of spatial boundaries the crossing of thresholds may be seen as a form of unwrapping, while exit may represent re-wrapping (*ibid.* 22). There is a risk of the polluting of substances, things and people if they are in places that they should not be and contamination associated with crossing boundaries can be negated by purification or atonement (Fowler 2011, 143). This might explain certain motifs carved at thresholds of passage tombs, the placement of quartz at the entrances to monuments and the architectural devices such as low roofs, sill stones or lintels that force people to crawl or bow as they enter the passage tombs’ chambers. Richard’s ideas on wrapping monuments does not just confine themselves to monumentality, but also to the journey or the physical approach to sacred space, which “involves heavily sanctioned passage and a change in state” (2013a, 23).

LANDSCAPE, MOBILITY AND THRESHOLDS

Many boundaries such as rivers, lakes, bogs and mountains regularly appear to have been perceived as important landscape features that were viewed as being apart from everyday life and possessing a sense of sacredness, and crossing these perhaps necessitated rites of transition (Dowling 2006, 17–8). However, rivers can also represent a chain of internal highways forming routeways for mobility that act as symbolic routeways through their relationship with burial sites. Their drainage might also act as a possible map of directionality relating to mobility (see Haughey, Chapter 6 this volume). Jim Leary (2010, 149–50; Leary *et al.* 2013, 156–8) has shown the importance of rivers and springs at Silbury Hill, Marlborough Mound and other sites on the River Kennet as well as noting how these sites marked routeways that also emphasised “ownership, belonging, ancestry, and a right of tenure along the valley, in both metaphysical and practical senses” (Leary & Field 2012, 64). Likewise, Harding (2012) notes the geographically and spiritually liminal aspects of the henge monuments of Yorkshire and their relationship with rivers, which combined to form a sacred landscape. Roy Loveday (Chapter 5 this volume) has observed that many cursus monuments appear to be related to river confluences, or positioned as way-markers to uplands that may have marked routes associated with transhumance and possibly for gatherings during seasonal festivals (cf. Loveday 2006). Many authors have

suggested that water acts as a transformative substance associated with rebirth, renewal and purification (Bradley 2000; Fowler and Cummings 2003; Oestigaard 2011; Richards 1996) and rivers might have been viewed as representing journeys for both the living and the dead (Cummings 2007, 59; Parker Pearson 2012, 157–8).

The River Boyne and River Shannon

The importance of rivers, coasts and other landscape features that can facilitate or inhibit communication, has been linked to regional interaction during the Neolithic in Ireland (Jones 2009). Many Irish passage tombs are located overlooking major river systems such as at the Boyne Valley, and at the Lingaun River (Knockroe passage tomb), the Delvin (Fourknocks), the Liffey (Seefin), the Slaney (Baltinglass), and their positioning appears to act as a deliberate symbolic statement (O’Sullivan 2004, 46; 2010, 15). There are geographical links between a series of passage tombs provided by the River Suir, as all are located in positions overlooking its tributaries. The Deerpark and Shrough passage tombs overlook the River Aherlow while Knockroe and Baunfree overlook the Lingaun River (Ó Nualláin & Cody 1987, 82). Likewise, Grogan (2013, 338–9) has noted the relationship of rivers systems and passage tomb complexes within the context of the Mound of the Hostages at Tara, Co. Meath. At many of the Irish passage tomb complexes, rivers can create boundaries that need to be crossed, but at the same time appear to act as routeways that provide links to other passage tomb complexes.

Gabriel Cooney (2000, 252) highlighted the island-like nature of the Boyne Valley being bounded by the Mattock River to the north and the River Boyne that bends around the complex to the south, west and east (Fig. 4.5a). He suggested that the rivers acted as important routeways but at the same time the Boyne “defined the boundary between the world of the living and the *Brú* [*Brú na Bóinne* – the mythical name for Boyne Valley passage tomb complex], the abode of the spirit world and the ancestral spirits who lived on and could intervene in human affairs” (*ibid.*). This defined boundary contains physical thresholds in the form of fording points. These had to have been used to access certain parts of the landscape or they may have been disembarkation points along river system. Ardmuchan passage tomb, c.8km west southwest of the main passage tomb complex at the bend of the Boyne, overlooks a fording point. Similarly, the important Ford of Brow (which formed part of the ancient route *Slighe Midluachra*) crosses the Boyne at the townlands of Rosnaree and Newgrange (Stout 2002, 70–3); there is a ford over the Mattock c.0.9km northwest of the Monknewtown embanked enclosure (*ibid.* 104) and then there are the fording points at Oldbridge and Townleyhall, just east of where the River Mattock meets the River Boyne (*ibid.* 115–7).

Cochrane (2012, 135), in his discussion of the Loughcrew passage tomb complex, notes how the monuments occupied a liminal zone in the landscape that possibly acted as some form of integration or separation. Contact with them was probably temporal, and in certain instances physically and emotionally hazardous. He suggests that the summits of the Loughcrew Hills form ‘islandscapes’ and act as places that can enhance links with other places and people, while at the same time delineate boundaries (*ibid.* 139). Cooney (2000, 252) draws attention to the fact that Loughcrew lies on the interface between the River Blackwater, the main tributary of the River Boyne, to the east of the complex, and

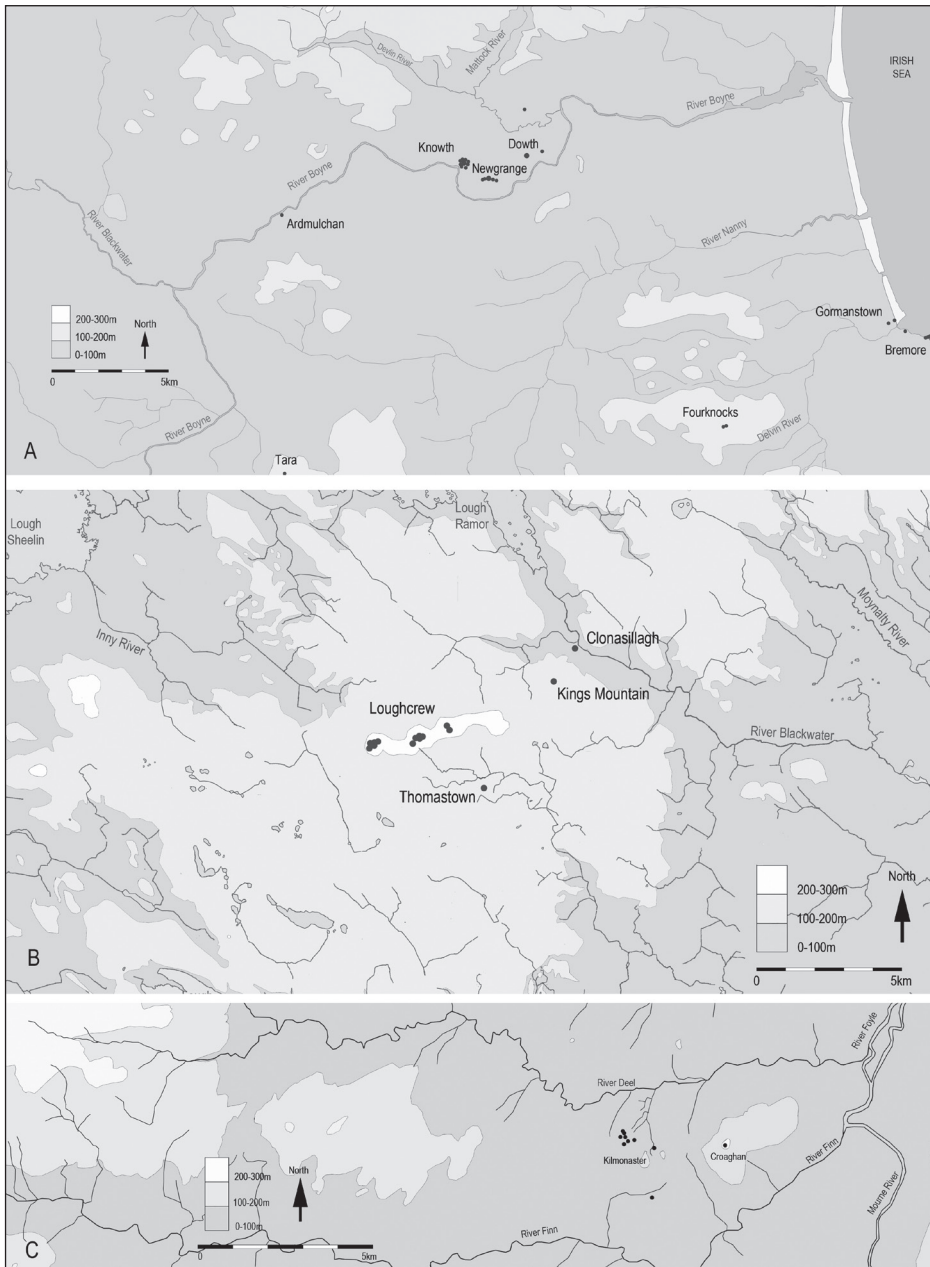


Fig. 4.5: a) Top map shows rivers and relationship with the passage tomb complex of the Boyne Valley as well as other passage tombs in Co. Meath; b) Centre map shows the location of the Loughcrew complex and its interface between the Blackwater and the Inny; c) Bottom map shows the relationship of the Rivers Finn and Deel with the passage tomb complex at Kilmonaster, Co. Donegal. (Various scales).

the River Inny, a principle tributary of the River Shannon, which lies to the west and southwest (Fig. 4.5b). It is worth noting that two passage tombs and a standing stone with megalithic art continue the east-west axis of the Loughcrew complex to the east towards a ford on the River Blackwater. There is a destroyed passage tomb on Kings Mountain, and on the slope leading down towards the Blackwater, one of the stones of a stone pair at Clonasillagh has megalithic art. Over 300m to the northeast of this is the passage tomb at Clonasillagh, which is 180m west of a ford on the Blackwater. The River Inny flows west northwest from the Loughcrew complex into Lough Sheelin, then Lough Kinale, south to Lough Derryvarragh and west to Lough Ree; one of the River Shannon's principle lakes. Going upstream (north northwest) on the Shannon brings one onto two other of its tributaries; the Feorish River and the River Boyle, which are in close proximity to the Carrowkeel-Keshcorran complex.

The River Boyle flows in an east-west direction to the south of the Curlew Mountains with two medieval routeways crossing the mountains from it, both heading north: *Bothar an Chorann*, which skirts the west side of the Bricklieve Mountains and *Bothar an Iarla Rua*, which is located on the east side of the Bricklieves. The latter routeway passes 1km west of the dramatically located cairn on the summit of Sheegorey, which is the hill on the most eastern extent of the Curlews. Approximately 11km to east of Sheegorey, the Feorish River passes on the eastern slope of the Moytura upland; an area of high ground on the east side of Lough Arrow. There is one passage tomb (Heapstown) and a probable passage tomb (*Suigh Lughaidh*) located at Moytura, along with 16 other megalithic tombs. On the highest point (226m OD), at the north end of the Moytura ridge, is the probable passage tomb of *Suigh Lughaidh* (cf. Hensey *et al.* 2014, 65–6) and to the north west of the ridge is Heapstown cairn. Heapstown is c.60m in diameter and c.10m high and is the fifth largest kerbed cairn in Ireland (only superseded by Newgrange, Knowth and Dowth in the Boyne Valley and *Miosgán Meadhbha* on the summit of Knocknarea, Co. Sligo). The presence of passage tomb art on one of its kerbstones and its potential relationship with nearby passage tombs at Carrowkeel-Keshcorran strongly suggests that it is also a passage tomb (Hensey and Robin 2011; Hensey *et al.* 2014, 66).

The River Unshin and the Owenmore River

Heapstown has an unusual location for a passage tomb as it lies on flat ground 65m OD. What is interesting about its location however, is that it is 670m northeast of a fording point over the River Unshin, a pattern that occurs at sites mentioned above and others sites such as at Knockroe in Co. Kilkenny (O'Sullivan 2004, 46). The fording point over the River Unshin lies c.4km northeast of the nearest passage tomb at Carrowkeel (cairn C) (cf. Moore 2008), and is identified as the 'Ford of Destruction' and the 'Ford of the Unshin' – *Ath Admillte* and *Ath Unsen* – in the central story of the Irish mythical cycle, the Battle of Moytura or *Cath Maige Tuired* (Gray, 1982, verse 85). This is where the father god of the ancient gods of Ireland (*Tuatha Dé Danann*), the Daghdha, meets a goddess known as the Morrígan just prior to the mythical Battle of Moytura and has intercourse with her. He meets her again during the battle at the ford on Halloween, where she gives him two handfuls of the blood of *Indech De Mac Domnann*, a Fomorian king and enemy of the *Tuatha Dé Danann*. The mythical narrative associated with the

Ford of Destruction in *Cath Maige Tuired* is not unique in Irish mythology as there are numerous examples of battles or Otherworldly events that occur at transitional points in the Irish landscape that often happen at transitional times in the year or at sunrise or sunset (Rees & Rees 1961, 94; Bourke 2001, 134–6).

To west of the Carrowkeel-Keshcorran passage tomb complex is another ford, known as the Ford of Corraun. This crosses the Owenmore River at Bearvaish and Rathmullen and is overlooked by a bowl barrow. During construction of the bridge over the ford in the early twentieth century a hoard of ten polished stone axe heads was found (Table 4.2). This fording point is situated 4.6km west of cairn Q on the summit of Keshcorran Mountain (Fig. 4.1). Many stone axes appear to have travelled some distance from their source, but may have been exchanged between neighbouring groups (Cooney & Mandal 1998). The deposition of at least seven porcellanite axes at the Ford of Corraun suggests that this crossing point in the landscape held considerable importance to the people who deposited these objects.

The Owenmore and Unshin Rivers converge at the Ballysadare River c.14km to the north of the Bricklieve Mountains, which flows into Ballysadare Bay. These rivers link the Carrowkeel-Keshcorran complex with that of the *Cúil Irra* complex (Bergh 1995) (Fig. 4.1). Hence, three river catchments – the Boyne, Shannon and Ballysadare/Unshin – link the four main passage tomb complexes in Ireland. Connecting places via waterways or mountain passes through the construction of monuments on or overlooking particular routeways is not uncommon in megalithic studies. Criado Boado and Villoch Vázquez (2000) noted the positioning of Galician megaliths at passes and overlooking river valleys, while Wheatley *et al.* (2010) identified megalithic tombs in southern Spain as acting as landmarks that connected people with specific features in their surrounding environment, particularly river valleys, and also acted as waypoints to aid movement of people, animals and goods. Major routeways, linked also to the

Table 4.2: Geological identification of stone axes found at the Ford of Corraun, after Ian Meighan (pers comm.)

NMI no.	Object	Location	Geological ID*
1928:750	Stone axe	Ford of Corraun, Rathmullen	Porcellanite
1928:751a	Stone axe	Ford of Corraun, Rathmullen	Porcellanite
1928:751b	Stone axe	Ford of Corraun, Rathmullen	Porcellanite
1928:752	Stone axe	Ford of Corraun, Rathmullen	Porcellanite
1928:784	Stone axe	Ford of Corraun, Rathmullen	Basalt (?)
1928:785	Stone axe	Ford of Corraun, Rathmullen	Porcellanite
1929:1493	Stone axe	Ford of Corraun, Rathmullen	Chert (?)
1929:1339	Stone axe	Rathmullen/Bearvaish	Mudstone (?)
1929:278	Stone axe	Rathmullen	Porcellanite
1929:279	Stone axe	Rathmullen	Porcellanite

(NMI no. refers to National Museum of Ireland's catalogue number)

potential movement of material, people and ideas between Scottish monumental complexes, have been explored by Noble (2007). Midgley (2013, 435–6) has suggested that megaliths in Northwest Europe appear to be associated with mobility; both for practical and symbolic reasons and that they convey a range of meanings including the cultural liminality of the ancestral dead which possibly conveyed the message to strangers that there is an ancestral presence in a particular region. The passage tomb monuments in the Outer Hebrides also appear to be situated along key communication routes, which appear to have played a role in mobility and the establishment of networks (Cummings & Richards 2013, 193–200).

PASSAGE TOMBS AND LANDSCAPE ‘BOUNDEDNESS’

Movement to the passage tombs at Carrowkeel-Keshcorran would have involved passing dolines, sinkholes, glacial erratics, springs, caves and other natural features associated with the karst landscape of the Bricklieve Mountains, and many monuments within the complex are spatially linked to these features (Moore 2003). Moving towards the monuments therefore would have carried potential extra meanings and may have been an important part of the experience of the journey where views, landscape, and built features were encountered. The dramatic topography of the Bricklieve Mountains has the potential to be linked to an embedded cosmology where the “experience of topography and land, and through the categorization of space and time, particular natural places are recognized and images of landscape and concepts of order are created” (Garrow *et al.* 2005, 249). The use of water as a natural boundary is potentially another form of wrapping (Richards 2013b, 89). The role played by rivers and fords, which acted as potential thresholds into a scared landscape, appears to be part of this cosmology. At the Carrowkeel-Keshcorran complex the fording points at the Ford of Destruction, overlooked by Ireland’s fifth largest cairn, Heapstown, and the Ford of Corraun, where a hoard of stone axes were deposited, suggest entry points into the bounds of the passage tomb complex. The Owenmore and Unshin Rivers seem to act as boundaries that wrap the landscape, while the fords act as thresholds.

This idea of wrapping a landscape using the natural landscape is not confined to the Carrowkeel-Keshcorran complex but seems to occur at a number of other passage tomb complexes such as outlined above at the Boyne Valley, where the monuments are enclosed by the bend of the Boyne and the River Mattock. Likewise, at Kilmonaster in Co. Donegal (Ó Nualláin 1968) there are a cluster of passage tombs to the west of an elevated focal monument on the summit of Croaghan Hill that are bounded by the Deel River to north and the River Finn to the south; both tributaries of the River Foyle (Fig. 4.5c). The *Cúil Irra* peninsula, dominated by the massive cairn on the summit of Knocknarea, is also surrounded by water with Sligo Harbour to the north, Ballysadare Bay to the south, the Atlantic Ocean to the west and Lough Gill to the east. Only 70m from a fording point over the Garavogue River, which drains Lough Gill, is the passage tomb of Abbeyquarter, which acted as a symbolic marker when approaching the *Cúil Irra* region from the north (Bergh 1995, 121–2).

The natural features of rivers that create the ‘boundedness’ at many passage tomb complexes forms a natural boundary space that encloses the monumental presence of the passage tombs within that space, adding another threshold that had to be crossed to access the ‘sacred’ relics contained within the monuments. The performance of complex rites of transition at thresholds that cross boundary places may have served to protect people from potential threat from super-natural entities, from possible pollution that may emanate from these liminal zones which could also contaminate the temporal sphere of everyday life (Dowling 2006, 25). The positioning of the ancestral remains of the dead within passage tombs on ridgelines, hilltops and mountains, where they touch the sky and possess extensive views, appears to be strongly linked to the idea of having horizontal (geographical) and vertical (celestial/chthonic) cosmological axes (Helms 1998, 37).

DISCUSSION

The use of boundaries and thresholds form part of a limited, contextually distinctive repertoire of ritual actions, ideas and emotions found all over the world within ritual, but rituals associated with boundaries are infinitely varied and unique to each cultural group (Fisk 2000, 80–1). Marking boundaries is one of the most common elements of ritual found in a vast array of cultures, past and present (Boyer 2001, 272). The use of boundaries is one of the few common themes relating to the different concepts of sacred space and objects, and schemes of containment are related to embodied interaction, where the body itself is an entity with boundaries and thresholds (Anttonen 2000, 278–80; *cf.* Douglas 2002, 150–9; Fowler 2011, 143–4).

Mobility in the Neolithic can be linked to mythical and real embodied experiences that constitute an individual’s identity and influence social relationships (Edmonds 1995; Whittle 1997; Cummings & Johnston 2007b). It is not just the practical aspect of moving from place to place, but forms a major aspect of identity and ‘being-in-the-world’ (Cummings & Johnston 2007b, 6). Mobility acts as an element in political, social, economic and religious affairs where ancestors may have provided protection and/or acted as a means of negotiation between groups in terms of exchange, access to territory or grazing areas associated with transhumance (Helms 1988; Midgley 2013). Depositional practices at places perceived as liminal, as thresholds between worlds, could represent “passports for travel between the worlds” (Mullin 2011b, 101–2). Perhaps the axes at the Ford of Corraun were perceived as suitable durable objects that embodied various symbols and because of their durability they retained these symbolic meanings. Objects such as these, along with other possible ‘regalia’ associated with the passage tombs – burnt and unburnt bones of humans and animals; bone and antler pins; stone beads and pendants; polished stone balls and Carrowkeel ware pottery – were used in ritual actions associated with bridging boundaries between the domain of social groups and the domain of the ancestors, as well as assisting “the necessary passages and transformation that take place between these two worlds” (Helms 1998, 165). That a number of these durable tangible objects had origins in a place outside the region (*e.g.* porcellanite axes, serpentine beads, quartz, antler pins, sea shells and sea shell tempering in the pottery *etc.*) suggests they contained certain symbolic qualities

associated with ancestral relics, ‘Otherness’, travellers and endurance (Helms 1988; 1998, chapter 11). The *Cúil Irra* and Carrowkeel-Keshcorran complexes are ideologically linked (Bergh 1995, 162); they are visually linked, but are also possibly associated with shared ancestors, spirits and objects, and they are physically linked by the Owenmore and Unshin Rivers, where two worlds are being drawn together into one symbolic universe which had the potential to create a materialization of worldviews.

The journey to the passage tombs may have been viewed as a visit to a sacred and potentially dangerous locale which possessed the remains of the ancestral dead, a threshold to distant worlds, and a place that could have offered spiritual or personal illumination. The potential ritual danger of the dead appears to be counteracted by wrapping passage tombs with transitional thresholds and boundaries (Richards *et al.* 2013, 204). This danger might not represent the potential of pollution from decomposing corpses, something that does not appear to have occurred in the Irish passage tomb tradition. It is more likely to be protection from the potential hazards associated with the agency of the dead where the dead are dangerous unless they are ritually disposed of correctly and that the relics inherently retain these potential dangers (McCorkle 2010, chapter 9). Indeed, much of the mythology and folklore relating to many Irish passage tombs are associated with potentially dangerous negotiations with the *Sídh* (anglicized as ‘Shee’), the Otherworldly beings who are associated with dwelling within mounds and cairns (Thompson 2004; hÓgáin 2006, 212 on myth and passage tombs *cf.* Waddell 2014, chapter 2).

Although we can never know exactly how passage tombs might have been approached during their use through time (*cf.* Cummings 2007; Garrow 2007), it appears that a number of passage tomb complexes share similar patterns in terms of location. They also share repetition of a wrapping system of physical and symbolic concentric spaces; as well as the type of grave goods and treatment of the dead. It should be noted that the consistent spatial order seen in the recurring concentric arrangement of space does not mean that each monument represents a common cosmological framework. Each passage tomb is different to the next, and each has considerable variance in terms of architectural traits, depositional practises, orientation, scale and topographical location. Also, the landscape and the perception of the monuments was being continually re-created and transformed through time, which impacted on their meaning and significance. It can be said however, that particular forms in which participants engaged in ritual actions at passage tombs, and how they approached, entered and experienced these monuments, would have had links to how the participants viewed their own lives from year to year and through generations forming a communal cohesion expressed through the predetermined way of experiencing ordered space and through coming into proximity with ancestral remains (Biehl 2012). Cummings (2007, 60–1) suggests that movement to and from a megalith was linked to an engagement with a particular mythical narrative and that visiting the ancestral remains in passage tombs can be linked to concepts of liminality, continuity and renewal along with the creation and consolidation of identity. The experience might not be just one concerning death, the final rite of passage, but, as most passage tombs were permeable, access to the remains could also have been associated with other rites of passage such as initiation (*cf.* Garwood 2011), or with seasonal transitions as indicated by numerous examples of alignment at a number of focal monuments within passage tomb complexes (Prendergast 2008). The living could

have utilised the dead where relics were removed from monuments to be circulated among the communities; or other passage tombs could have been temporarily sealed to protect the living from the dead or *vice versa*, which suggest different levels of permeability (Bradley & Fraser 2011, 41). A number of the Carrowkeel-Keshcorran passage tombs provide access to relic remains, and one of the uses of the monuments may be associated with journeys and large gatherings similar to pilgrimages.

Chris Scarre (2001, 18) suggested the use of the more neutral concept of the sacred journey over the idea of pilgrimage and proposed that these journeys were carried out at a number of prehistoric sites in France, Britain and Ireland. Passage tombs can be perceived as places of transformation for the dead (Fowler 2003; 2010), but the journeys of the living to visit the ancestral remains may also have acted as transformative journeys (Turner & Turner 1978, chapter 1; Morinis 1992). The idea of sacred journeys or pilgrimage to passage tombs has been tentatively suggested by Cooney (2000) and O'Sullivan (2010, 16), as Harding has for henges (2012, 49–50). Rites of passage frequently involve actual physical movement where spatial locations change during social transformation and the rites can be seen as a journey to a new place (Boivin 2008, 53–4). Thresholds associated with passage tombs have associations with passage, transformation and liminality, and are linked to physical movement and metaphorical social change. Also, the emotive experience of the journey to the passage tombs can be negotiated into long-term memory, and perceptions of self and life become inextricably linked to periods of liminality (Price 2007, 96). The possible sacred journeys to the Carrowkeel-Keshcorran passage tombs were linked to a transition of identity where the monuments themselves represented portals into and out of the otherworld.

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Monuments to mobility? Investigating cursus patterning in southern Britain

Roy Loveday

‘Cursuses cannot be understood without a wider consideration of contemporary social agency and power structures’ (Harding and Barclay, 1999, 6).

Monuments are synonymous with permanence. They were clearly intended to endure, to inscribe and ‘alter the earth’ (Bradley 1993). Since their construction stamped a measure of ownership – if only spiritual – on the land, their builders can be considered to have been its occupiers, whether seasonally or permanently. Distribution maps appear to bear this assumption out. In classic regions of southern Britain, such as Wessex, the Upper Thames Valley, and the lower Nene and Welland valleys, the relatively even distribution of Neolithic monuments leads us, consciously or unconsciously, to view them as central – or at least focal – places. In the case of causewayed enclosures we may accept that centrality as distinctly unconventional, since many appear to have built in small woodland clearings (Oswald *et al.* 2001, 104–6; Healy 2009, 110), but the range of artefacts and faunal material encountered in their ditches points to focal significance, whether for local groups following radiating trajectories of semi-mobile agriculture or for wider interaction between neighbouring groups.

The distribution of great henge enclosures in Wessex and of classic ceremonial henges in the Upper Thames Valley similarly encourages the idea of local catchments (Renfrew 1973; Hey & Barclay 2011, 300). The Theissens polygons that spread like an apine rash across distribution maps in the 1970s may have gone, but it is difficult to escape their logic particularly when, in areas like Wessex, monument spacing closely corresponds to that between the medieval market towns of the region – around 30km/18 miles. Assuming contemporary use – an ever present danger in reading distribution maps (*cf.* Brophy 2009) – even spacing implies a measure of centrality for local groups, and that, in turn, argues for occupation of the hinterland. But between these Early Neolithic (4000–3500 cal BC) and Late Neolithic (2900–2300 cal BC) local catchment patterns lies that of Middle Neolithic cursuses, and they present a very different picture.

CURSUS DISTRIBUTION

This is most clearly evident in the Upper Thames Valley where earlier causewayed enclosures and later henges suggest partially revealed local centre patterns whereas cursuses cluster in

two great concentrations – around Dorchester-on-Thames and around Lechlade – Buscot (Fig. 5.1). The pattern appears real: the only wholly convincing addition in this most heavily overflowed area in recent years has been the site at Stadthampton, and that simply increased the intensity of the clustering around Dorchester-on-Thames (Barclay *et al.* 2003, 232). A site adjacent to a causewayed enclosure at Buckland is morphologically convincing (Oswald *et al.* 2001, fig. 4.17), but at only 90m long hardly bears comparison with the other

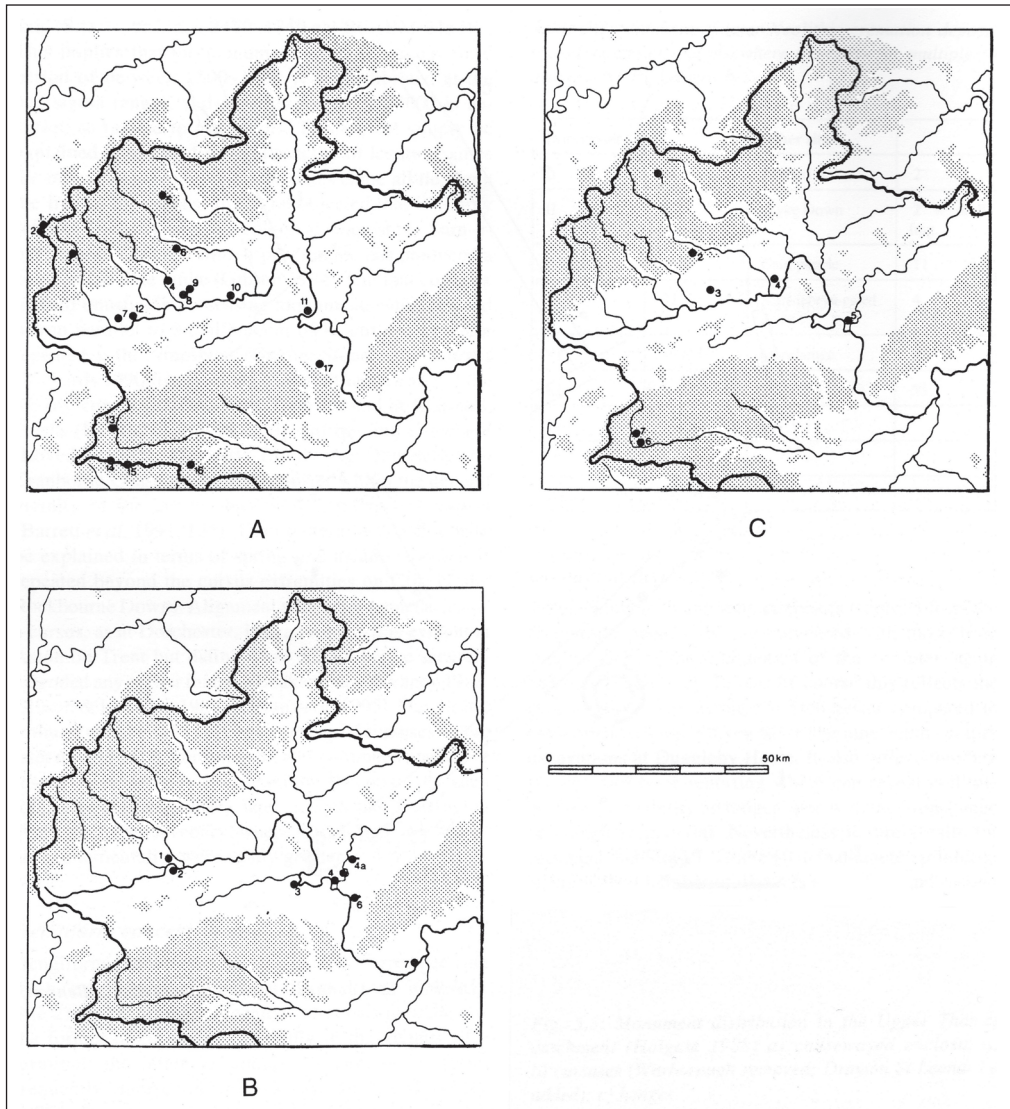


Fig. 5.1: Monument distribution in the Upper Thames catchment (Holgate 1988). A) causewayed enclosures; B) cursuses; C) henges.

eight monuments of the valley which, with only two recorded in their entirety, range from over 300m to over 1.6km in length. In contrast causewayed enclosures and henges in the Upper Thames catchment exhibit little size variation (Oswald *et al.* 2001, fig. 6.4; Barclay *et al.* 1995, fig. 35). The pattern broadly holds for Southern England as a whole. Although the virtual absence of henges across the Midlands and East Anglia leaves a question mark over the third millennium cal BC picture, causewayed enclosures are fairly evenly spread throughout areas conducive to crop mark production while sites like Husbands Bosworth are filling in gaps elsewhere (Clay 1999; Oswald *et al.* 2001, fig. 5.1). This logically argues for local usage albeit with particularly close clustering in Wessex, the Upper Thames and the Lower Nene and Welland, (Fig. 5.2). A very different pattern emerges, however, when the location of *major* cursus sites (1km to 5.64km in length: Loveday 2006a, 26–7) are added on to the map (Fig. 5.3).

Spacing for these huge sites is remarkably even at around 85 to 100km (50 to 60 miles) although the central zone with the Great Ouse, Nene and Warwickshire Avon valleys appears suspiciously empty. The pattern could be a product of a number of inhibiting factors: alluvial overlay (*cf.* Manor Farm, Old Wolverton, Milton Keynes: Hogan 2013), urban spread or lack of recognition – with sites potentially 100m wide and spanning several fields, single ditches alone may be revealed at any one time or a very partial record obtained of site length. Thus the Biggleswade cursus, Bedfordshire – 80m wide and now traced for over 700m, (Abrams 2010; superseding 380+m Loveday 1985 corpus no. 31; 2006, appendix 1) should probably be placed in this major group, as possibly might the

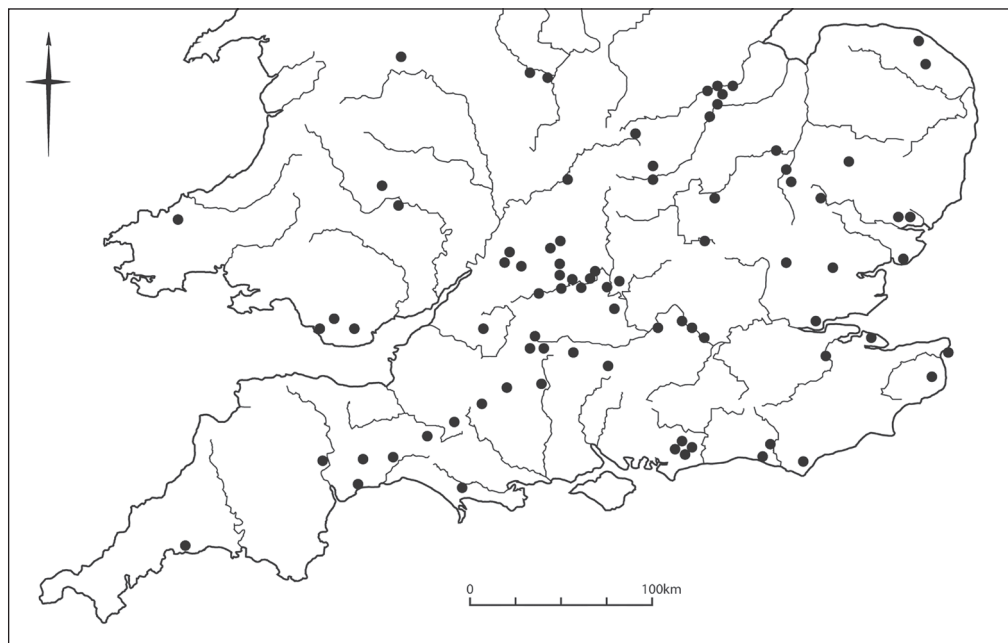


Fig. 5.2: *The distribution of causewayed enclosures in southern Britain (after Oswald et al. 2001).*

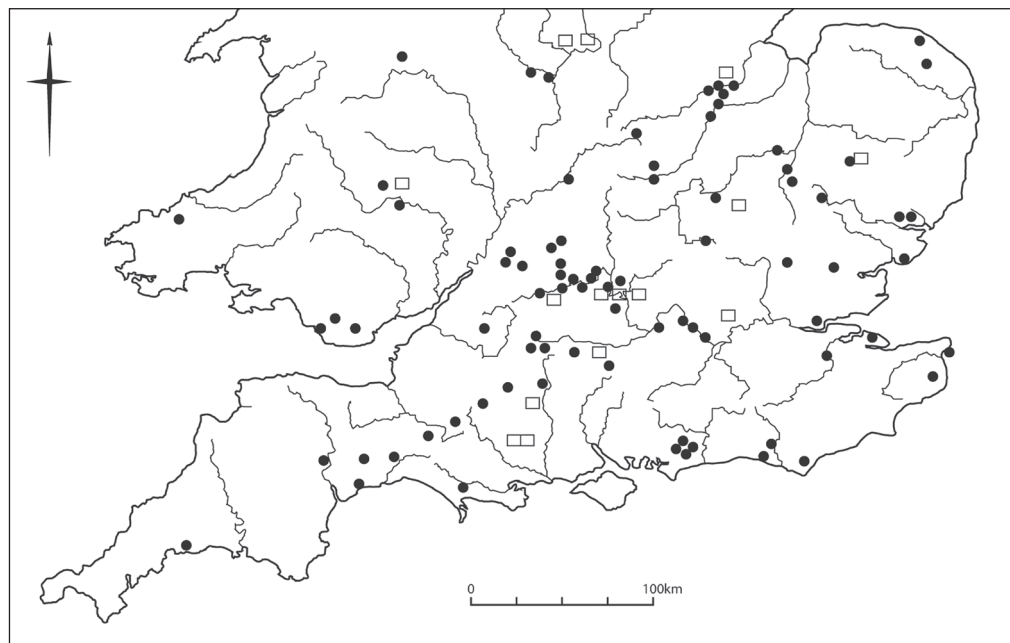


Fig. 5.3: The distribution of causewayed enclosures and major cursus (squares) in southern Britain.

claimed site 15km away revealed in a gravel pit at Kempston, Bedfordshire that comprised a “long, straight ditch about a hundred yards in length” containing a crouched burial with a Wessex/Mid Rhine Beaker (Dunning 1938, 284). Doubt has reasonably been expressed regarding Thomas’ (1964) cursus identification (Oake *et al.* 2007, 33) since the Beaker points to a Final Neolithic, rather than Middle Neolithic, date. Wessex/Mid-Rhine type Beakers are, however, quite closely associated with cursus locales (Loveday 2012, 118) and Gill Hey’s recent excavation of a Beaker burial dug into the Dorchester-on-Thames cursus ditch (Hey pers. comm.) furnishes a potential parallel. Present evidence restricts such Beaker ditch line re-use to sites of major dimensions (Drayton South, Oxon: Barclay *et al.* 2003, 22 & fig. 3.2; Curriestanes, Dumfries: Brann 2003). Inclusion of the Biggleswade and Kempston sites as respectively a probable and possible major cursus would furnish, along with the Cardington complex, a concentration in the Great Ouse Valley akin to that around Dorchester-on-Thames (Loveday 1999a; Barclay 2003). Major sites elsewhere may have been missed: following the Upper Thames Valley pattern, the minor cursus at Sonning, Berkshire, could signal the former presence of a major site at the Thames-Kennet confluence now covered by Reading (Loveday 1985, corpus no. 36). Nevertheless, when weighing major cursus distribution against that of causewayed enclosures and henges we should recall that just one field under pasture can totally obscure one of the latter two types of monument. Odds, therefore, hugely favour major cursus recognition.

Length classification must, of course, be to some extent arbitrary, however much based on a perceived numerical division in the cursus continuum (Loveday 2006a, 26). Yet there

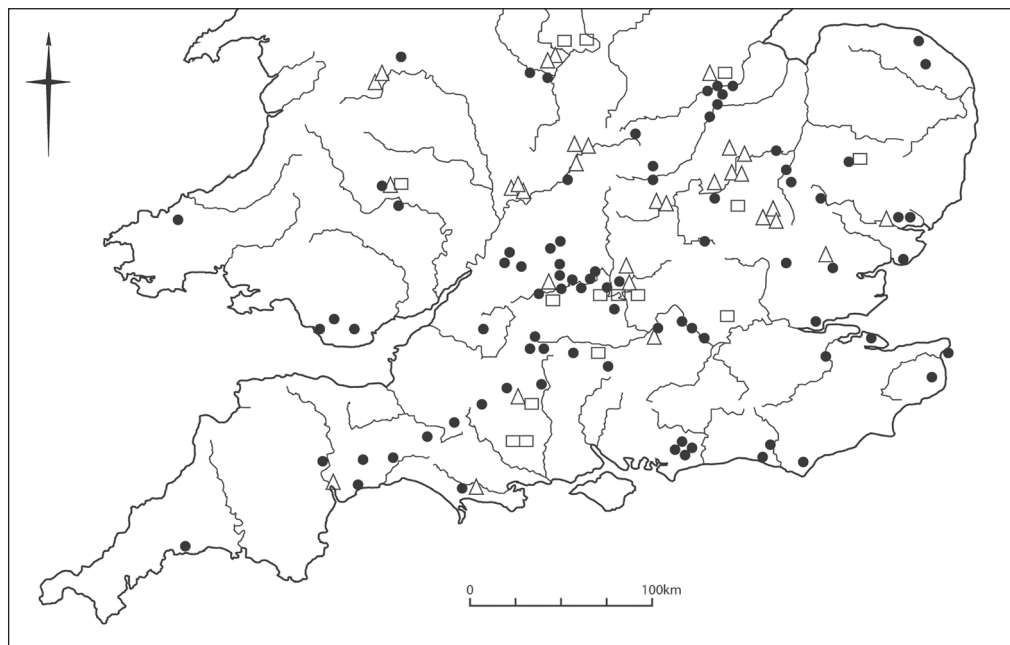


Fig. 5.4: The distribution of causewayed enclosures and major cursuses (squares) and minor cursuses (triangles) in southern Britain.

is no doubt that sites over 1km in length point to a very different social dynamic to that which produced sites just 200m long. Leaving aside the possible implications of such huge sites for a moment, we might expect that the addition of sites of minor size (some 150 and 800m long: *ibid.* 26) to the distribution map would fill the gaps and, combined with the major monuments, produce a closer copy of earlier causewayed enclosure distribution.

That is not the case (Fig. 5.4), except perhaps in the Great Ouse valley, although there several of the claimed monuments (Malim 2000) are questionable and, perversely, causewayed enclosures are rare. Elsewhere we see loose area groupings of minor sites as at Charlecote – Barford in Warwickshire, Catholme-Walton in Staffordshire and the recently recognised sites on the chalk dip-slope near Chrishall, Essex (Loveday 1989; Buteux & Chapman 2009, 63–5; Ingle & Saunders 2011, 27–8; 44). Or we find an association of minor sites with major ones as around Dorchester-on-Thames (Stadhampton and Drayton St Leonard) and in the Stonehenge landscape (where the Lesser and Greater cursuses lie within 700m of each other). Whole landscape areas were, it seems, being staked out by these monuments (Loveday 1999a; 2006; Barrett *et al.* 1991). Whether on the gravels subject to the masking effect of alluvium, or on the chalk, which was not, the most common patterns appear to be loose grouping coupled with the often, huge magnification of one of the sites. This cannot have resulted from purely local endeavour. That is arguably manifested at the lower end of the cursus continuum by long enclosures of Middle Neolithic date (*e.g.* West Cotton, Northants. and Normanton Down, Wiltshire) but they also have a tendency to

cluster at the main complexes; farther afield they are often randomly, rather than regularly, spaced (*e.g.* Warwickshire Avon valley). More importantly they grade into sites of ovate form that are likely to represent ploughed out long barrows built to the West Rudham and Royston models during the Early Neolithic (Hogg 1940; Phillips 1935; Loveday 1985, 1989, 2006, 59–87; Oake *et al.* 2007, 34–5; Deegan & Foard 2007, 48–52; Healy 2011, 13–15). The antecedents of the cursus series may lie with such sites (Loveday 2006a, 59–87) but, in the absence of clear dating, care is needed in using them to fill problematic gaps in the Middle Neolithic cursus distribution pattern.

TERRAIN PLACEMENT

Cursuses are not only set apart in terms of their spatial distribution; the terrain selected both for them, and for long enclosures, is distinctive. This has been detailed most closely in the Nene valley. There Harding and Healy noted that earlier causewayed enclosures and later henges are distributed from valley bottom to valley sides and even onto uplands, whereas cursus-related sites are restricted to the valley base (2007, table 5.1). The Northamptonshire ‘Mapping Ancient Landscapes Survey’ has widened and intensified the picture (Deegan & Foard 2007, 59–61). And it is by no means a feature purely of the Nene valley. It is repeated, as we have seen, along the Upper Thames, and along the Great Ouse and the Trent if, in the latter case, we accept Gardom’s Edge in the Peak District as a causewayed enclosure-related site (Barnett *et al.* 2001). Arbor Low and the Round Hill, Twyford, Derbyshire furnish upland and valley floor henges but cursuses are clustered in the valley in two groups: between Willington and Aston on Trent (Loveday 2004; Knight and Howard 2004, 62–6) and further west around the Tame-Trent confluence, although there as far more minor sites (Buteaux & Chapman 2009, 63–5; Chapman *et al.* 2010, 137–9). By contrast, on the chalklands, valley traversing situations were chosen almost exclusively. These patterns are repeated across Britain. Specific, widely separated, landscape locales were it seems being selected for cursus complexes. How are we to explain this? Regional centralisation in the Middle Neolithic or a religious departure from previously more localised practice?

RIVER CONFLUENCES

A tendency to preferential siting at river confluences has encouraged the idea that these locations were selected because they possessed symbolic significance. Parallels for the idea are to be found in India, where confluences such as that of the Yamuna, the Ganges and the mythical Saraswati still host the vast Kumbh Mela festival. Yet when we search farther afield we are hard pressed to find overtly religious associations for river confluences amongst traditional societies; although the vast complex of Cahokia was sited close to the confluence of the Mississippi and Missouri its development is ascribed to the richness of wild resources and to nodality rather than cosmology (Fowler 1980, 72). That does not of course preclude the existence of such cosmological notions during the British Neolithic but there are also substantive reasons to question at least a primary religious association.

Compelling belief in the sacredness of such junctions could be expected to have resulted in the closest possible juxtaposition of cursus and confluence point. That is not what we see. If we ignore minor streams that everywhere dissect river terraces and inevitably weight the scales, we find that most sites were placed some 1.5 and 2.5km distant (Fig. 5.5). Dorchester-on-Thames lies nearly 2km from a confluence, Holywood 3km, Aston on Trent 4km, and Thornborough some 20km (10km to a more minor confluence). This could be explained by formerly braided stream courses (*e.g.* Brown 2009, fig. 7.11) and intervening marshes (Harding 2013, 206–7), but a recurrent feature of environmental studies has been that floodplains were often relatively dry land in the Neolithic (Barclay *et al.* 2003, 65). Even in the late Iron Age, when alluviation was well advanced in the Thames Valley, the Dyke Hills oppidum at Dorchester-on-Thames, with its mesh of settlement cropmarks, was built directly beside the confluence (Allen 1938).

From the Warwickshire Avon westwards (Woodward 2007, fig. 12), there appears to have been far less interest in confluences. The confluences of the West and East Cleddau, draining from Prescelly, and the Tamar and Tavy draining from western Dartmoor, would, for instance, seem prime candidates for ideological magnification by virtue both of size and context, but nothing has been reported. That could relate to land use – neither are under arable. But earthworks (at least of round barrows) might be expected to have survived long enough to be recorded. Alternatively it could reflect terrain. These are rias (drowned valleys) and hence sides slope quite sharply to the water. Flat land is not a feature. It is the latter which characterises the landscape of the impressive Walton basin complex in Powys and there the confluence of brooks is minor (Britnell & Jones 2012).

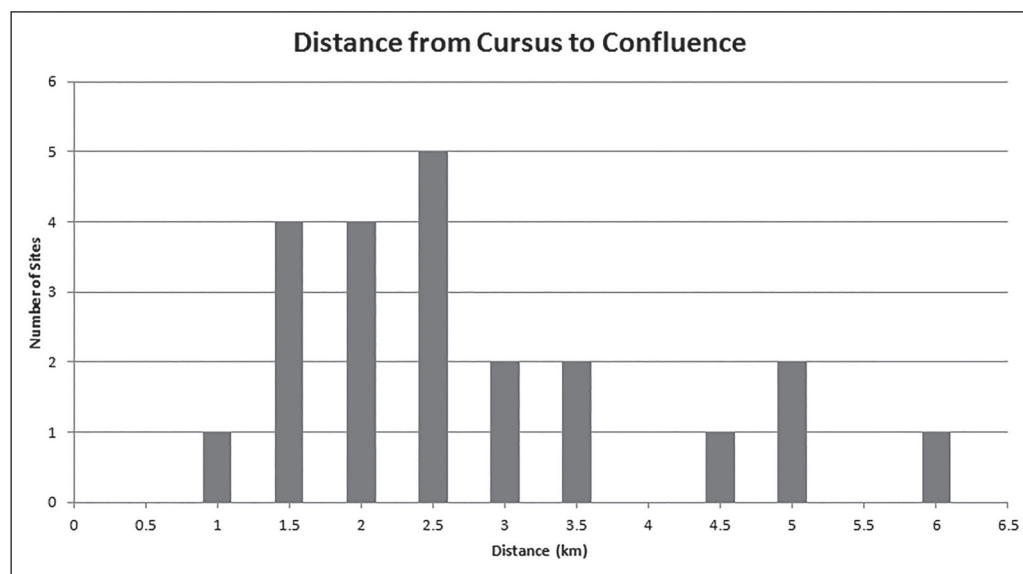


Fig. 5.5: Distances from cursuses to major river confluences.

But if we argue that the driving force behind preferential confluence zone placement was practical, not ideological – the selection of the largest possible extent of flat land on which to lay out the often huge cursus monuments – we have to explain why relatively level tops were not also selected for the truly colossal chalkland sites. Moving the Dorset cursus just 1km northwest would have resulted in a far leveller route than the one selected; 700m would have sufficed for the Greater Stonehenge cursus. And the Rudston complex could have been located 1.5km south along the level Woldgate ridge, where cursus A terminates anyway. We could counter by resort to the regional argument: that monuments in different parts of the country were built according to purely local norms and beliefs. This, however, requires us to explain:

1. Why, nevertheless, monument plans are comparable across the country. Homology implies an overriding concept rather than random definition of a significant route or alignment (Loveday 2006a, 23–7).
2. Why the same cross valley pattern was adopted for the huge sites on the chalklands of Wessex and the Yorkshire Wolds – 383km (230 miles) apart.
3. Why, elsewhere, valley floor location was almost exclusive from the North Esk to the Exe. Appropriate upland locales present themselves at both extremities and many points in between.

We could argue that the pattern simply reflects aerial photographic potential – chalk upland exhibiting the critical moisture retention differential that impervious uplands signally lack. But we need to recall that it was earthworks that first revealed the Greater Stonehenge Cursus, and that there are upland (as against highland) contexts elsewhere that have land-use records of pasturing into the eighteenth century. The Peak District, the Yorkshire Dales and the Sidlaw Hills are good examples yet they have failed to produce either the predicted earthworks or antiquarian record of them. It is, of course, feasible that the missing earthworks are hidden beneath later field walls: sections of the Drayton North, Oxfordshire and Aston on Trent, Derbyshire cursus boundaries appear to have been incorporated in this way (Loveday 2006a, 40–4) as were the extremities of the Greater and Lesser Stonehenge cursuses, a section of the Gussage cursus in Dorset and possibly the whole length of Cursus C at Rudston, East Yorkshire (Richards 1990; Barrett *et al.* 1991; Stoertz 1997). Yet field walls of appropriate length and morphology to hide an entire cursus are something of a rarity (Loveday forthcoming a). Rather than attempting to isolate underlying beliefs that could accommodate long distance congruencies of cursus form and siting (both cross valley and valley floor) could an answer instead lie in their common environmental setting?

ENVIRONMENTAL SETTING

In 1999 Alistair Barclay and Gill Hey published an important paper entitled ‘Cattle, cursus monuments and the River’ in which they argued that cursuses in the Upper Thames Valley must, by their very size, record clearings of greater scale than that required for local small-scale agriculture; this they suggested implies pasture. Very limited environmental data was available when they wrote. Dominant images were of river valleys choked by

tangled woodland (e.g. Buscot lock palaeochannel: Robinson & Wilson 1987), and of chalklands as an archipelago of small clearings in an otherwise continuous woodland canopy (Evans 1975). Bush and Flenley's evidence for an open landscape persisting from the late glacial close to the Rudston complex on the Yorkshire Wolds (1987) was largely ignored. Recent work, however, has strikingly demonstrated that the environs of the huge Wessex cursuses were open and grazed, and perhaps equally importantly that the Sussex chalk, that lacks cursuses, remained extensively wooded (French *et al.* 2007; French 2009; Allen & Gardiner 2009).

Evidence from the river valleys where acidic gravels are far less conducive to the survival of molluscan evidence, is less clear. That from the secondary silts of the Lechlade cursus points to the presence of dry open conditions, suggestive of short-turfed grassland (Robinson 2003a) and a similar picture of, at least locally, open conditions emerged from the sparse molluscan remains from the ditch of Drayton North (Robinson 2003b, 170). Detailed analysis of tree throw holes and burnt spread evidence protected by alluvium on the latter site, coupled with radiocarbon dating, pointed to tree clearance in advance of cursus construction followed by regeneration and further clearance. Initial clearance, at least to the level of grazed park woodland, may however have considerably preceded monument construction since charcoal was almost entirely absent from the cursus ditches despite the large number of samples processed. That was also true of the buried soil (*ibid.* tables 7.8a–c, 170). Evidence from the long enclosure at Yarnton similarly points to open grassland conditions at the time of construction, although woodland subsequently regenerated (Robinson 2011, 183). It seems probable that in the Thames Valley the only sustained clearances were those in the vicinity of ceremonial monuments (*ibid.*, 186). Farther afield the ditch silts of the Biggleswade cursus have produced seeds of weeds typically associated with grassy vegetation or arable land (Monckton 2010) and broadly open landscapes have been detected in the vicinity of the Maxey and Eynesbury cursuses (French & Pryor 2005; Allen 2004).

Confluence areas would naturally present as more open landscapes since seasonal overbank flood erosion from combined river flows, acting in conjunction with shallower rooting depth on well watered soil, would reduce the density of tree cover (Brown 2000). They were also obvious nodal points for groups using river valley routes, a factor perhaps in the relative dearth of cursus sites in the west, where that nodality has led to towns such as Hereford, Abergavenny and Builth Wells being built over the limited available flat land. Movement could have been by water – although we should be cautious of projecting our image of cleared and managed rivers onto the Neolithic – or by track: from the recording of Mesolithic and Neolithic flint work almost exclusively along the valley floor and immediate sides near Raunds, Northamptonshire, linear clearings along the Nene and its tributaries have been postulated (Harding *et al.* 53, figs. 3.1 & 3.5; 5.2 & 5.3). Middens in the Middle Thames Valley point the same way (Hey & Robinson 2011, 236–40). Long distance communication networks using river valleys seem certain adjuncts to Mesolithic exploitation of seasonal patterns of animal movement and wild resource growth. Such an 'inheritance' might explain not only a general association of cursuses with confluence locations but also a tendency for the monuments in northern Britain to be sited at (or close to) points where rivers left uplands and entered the plain. Broich at Crieff in Perthshire and Thornborough in North Yorkshire are good examples. All would have nodal significance

and potentially present cleared land for grazing, particularly important perhaps in the latter cases since the uplands probably still remained under forest cover.

River confluence areas, exits from uplands and chalkland spring line valleys might then share both extensive grazing potential and nodality, possibly with roots stretching back to the Mesolithic. It may be no coincidence that the principal alignment of the Greater Stonehenge Cursus is effectively the same as that of the Mesolithic postholes under the former Stonehenge car park, and that this appears to point to spring sunrises or autumn sunsets – the bracketing periods of transhumance (Loveday 2011).

TRANSHUMANCE

Might cursuses then record a major departure from Earlier Neolithic practice – a move from semi-sedentary or long fallow garden plot agriculture (*cf.* the Horton, Berkshire landscape with its four spaced Earlier Neolithic houses: Barclay *et al.* 2012; Barclay & Chaffey 2014) to long distance transhumance? Historically transhumance can be divided into two types: greater and lesser, in essence short and long although in practice no clear dividing distance can be drawn (Fox 2012, 29). Both were generated by a lack of available land: the lesser primarily by the need to protect crops on limited plots from cattle trespass; the greater by the need (in a more developed pastoral economy) to find additional grazing for large herds, particularly where seasonal aridity affected home pastures; it was not closely associated with arable concerns (*ibid.* 32). The lesser form is historically recorded in many upland and mountainous areas of Britain (Fox 1996) but the distances that animals were moved was modest: usually in the region of 5km (Bil 1990, 51–7; Herring 1996, fig. III.3; Winchester 1984); some 10–15km from the settlements bordering Dartmoor (Fox 2012, 29–30). These figures do not begin to approach the apparent catchments of cursus complexes as defined by the distribution set out above. Rather they approximate to an Early Neolithic pattern of limited mobility. Of course, prior to historic records, in a landscape far less crowded, greater distances may have been traversed by semi-nomadic pastoralists moving between winter and summer pastures (Arnold *et al.* 2006), but the question of motivation must be addressed. Limited forest clearance would have exerted a measure of land pressure but given the potential for (and probable dominance of) woodland browse (Robinson 2011, 185), it is difficult to see why this should have become critical during the thirty-sixth century cal BC and developed into potentially greater transhumance patterns just as causewayed enclosure construction was ceasing. The additional broad coincidence of cursus construction with the closure of a number of long barrows and the demise of the long distance transport of gabbroic pottery (Whittle *et al.* 2011, figs. 14.184–5) suggests a radical driver.

CLIMATE CHANGE?

Stevens and Fuller have recently (2012) argued from the summed probability distribution of some 700 radiocarbon dates derived directly from cultigens and wild foods that, after an initial period of cereal spread and increase (peaking *c.*3700 cal BC), a sharp decline

ensued 3650–3600 cal BC. This they suggest relates to a move towards a more mobile, pastoral based society in which wild foods remained a significant element of the diet. They record a further sharp decline *c.*3350 cal BC after which there is an almost total absence of direct cereal dates until *c.*2300 cal BC (*ibid.* 714–5, fig. 5). The authors suggest climatic deterioration is the most likely explanation for the apparent virtual abandonment of cereal agriculture during this 1,000 year period. That conclusion has also been reached by the authors of a major research programme that examined the extent and nature of Neolithic farming in Ireland through archaeobotanical and palaeoecological data set within the context of a C14 dating programme (Whitehouse *et al.* 2014). Recorded populations of bog oak – adversely affected by increased wetness – underpin the work. These start to decline 3620 cal BC and drop most steeply at 3500 cal BC (*ibid.*). Combined with other palaeoenvironmental data, an increase in climatic derived wetness is indicated which the authors note has also been observed in German bog pine records. Significantly the decline closely corresponds in date to the end of the Irish rectangular house tradition and is followed by a ‘Plantago gap’ (*c.*3500 – just after 3000 cal BC) marking less intensive use of the landscape and possible re-afforestation (*ibid.* figs. 18 & 20). The fact that this study isolates a period of major change and apparent settlement downturn in Ireland from 3600–3400 cal BC (termed by the authors Middle Neolithic 1) that corresponds closely to the major dips in cereal dates recorded by Stevens and Fuller (2012, fig. 5) for Britain, is particularly important. Together these studies confirm the wider, non-cultural basis of the change: in Southern Britain the bracketing dates (3600/3500–3400/3300 cal BC) correspond to those for early cursus construction (Thomas *et al.* 2009, 50; Whittle *et al.* 2011, 724–6) but in Ireland such monuments are rare and questionable, not least in terms of their date (Newman 1999); some passage tombs may belong here but their *floruit* lay in the succeeding centuries.

Arguments for woodland regeneration in the Middle Neolithic previously advanced by Whittle (1978) and Bradley (1978) appear then to have been correct. Deteriorating and unsettled climatic conditions could have rendered crop growing marginal. French has noted that “by the later part of the Middle Neolithic period ... both the ditch fills and the interior of the Etton causewayed enclosure were receiving additions of alluvial silt and clay, associated with annual, seasonal, freshwater river flooding episodes” (French & Pryor 2005, 163). Increased seasonal inundation may have created similar results in confluence areas, always the critical location for flooding due to pounding back. “On the other hand ... seasonally flooded ground would always have provided rich, lush summer pasture” (*ibid.* 166).

SOCIETAL IMPLICATIONS

Transition to a more pastoral economy is unlikely to have been smooth and uneventful. Cattle had been prominent in economic and cultural life (Ray & Thomas 2003) but the role of cereals as a staple should not be downplayed due to the greater vulnerability of their residues, and processing equipment, to destruction (Jones 2000; Roe 2009). Significant caches of carbonised cereals have been recovered against the odds (Moffett *et al.* 1989; Jones and Legge 2008; Loveday 2012), and Early Neolithic house groupings such as those

at Horton, Berkshire (Barclay *et al.* 2012; Barclay & Chaffey 2014) point to permanent garden plot cultivation. This suggests a considerable measure of dependence. That view has been reinforced by Whitehouse *et al.*'s demonstration that the proportions and habitat associations of weed taxa are all but identical in Britain, Ireland and the loess belt of Europe where permanent plot agriculture is not in question (2014, figs. 13 & 14). Grain is the great multiplier that sustains population growth; herding and gathering can never match it. Crop failures or reduced yields could therefore have had potentially devastating consequences.

Aggression is likely as neighbouring groups sought to make up their supplies. So it may be no coincidence that warfare is most clearly evidenced at causewayed enclosures that were suddenly built at this time: the peak of construction at *c.*3625 cal BC (Whittle *et al.* 2011, 716–9, fig. 14.20) corresponds closely to the dramatic dip in the bog oak record 3620 BC (Whitehouse *et al.* 2014, 19, fig. 20). It is at these sites that querns occur in greatest numbers (Whittle *et al.* 1999, 341; Pryor 1998, 257–60; Robertson-Mackay 1987, tab 22; Roe 2009) along with both carbonised grain in dumped matrices of ash and charcoal (*e.g.* Fairburn 1999, 149), and areas of burnt flint (*e.g.* Robertson-Mackay 1987, fig. 36). Rather than resorting to symbolic explanations for high quern numbers (*e.g.* Pryor 1998, 369) it may be better to see a protective response in the placing of enclosures in locations (woodland, river islands and upland spurs) where crop growing seems highly improbable. Almost entirely by virtue of wet-sieving, work at Hambledon Hill recovered 2,500 carbonised grains, along with an exceptional spikelet deposit of *c.*100,000 grains (Jones & Legge 2008); significantly the investigators considered them unlikely to represent the remains of feasting. Cereal type pollen was recorded at the Etton enclosure (Scaife 1998, 308) and adjacent to that at Abingdon (Parker 1999, 260–7), suggesting growth or processing in, or near, the sites, while burning (?roasting to aid storage and milling) of grain appears to be evident outside the enclosure at Windmill Hill (Fairburn 2000). Locally centralised and protected above ground storage (Loveday 1999), and possibly collective processing, within or around causewayed enclosures is perhaps no less implausible than the transportation of heavy querns to seasonal festivals where they would seem to have been largely superfluous.

Crop failures or low yields, along with aggression, would inevitably result in population decrease and with that woodland re-colonisation of arable plots. Their probable small size and close bordering scrub/woodland would greatly accelerate the process relative to modern records. Equally the transition from open, broken soil to grass cover would not have been straightforward. Early colonizing plants are unlikely to have been attractive to browsing animals which are only effective in keeping down seedlings growths if transition to pasture is fairly rapid and intensive. Delay would have seen large weeds rapidly dominating and bush and sapling growth reaching unassailable grazing heights within a few decades. Robinson notes (2011, 185) that even where open grassland had been created, stability could be maintained only by regular scrub cutting; thorn-scrub species would gradually become established if grazing alone was relied upon to keep conditions open. This would have placed a premium on large grassed areas and conceivably encouraged their demarcation by the seasonally assembled users. As a result of the Stonehenge Environs Project data Richards suggested a dividing role for the Greater Stonehenge Cursus (1984, 78–9), a point also noted by Barrett *et al.* with regard to the great Dorset Cursuses (1991) and by

Harding with regard to the Rudston complex (1999). All symbolically blocked access via valley routes to higher pasture land.

The virtual disappearance of houses from the archaeological record between *c.*3600 and 2900 cal BC, in contrast to the steadily increasing corpus of bracketing Early and Late Neolithic examples (Darvill 1996; Barclay *et al.* 2012; Pitts 2013; Gibson 1999, 35–47 & 162–3; Green 2000, 74. Parker Pearson 2012; Speed 2011; Leary *et al.* 2010; Leary & Field 2012) strikingly confirms the character of the change. Such absence argues either for total population collapse or more mobile and ephemeral shelters. Against the notion of population collapse must be set the fact that the period witnessed the emergence of the first truly colossal monuments; albeit some cursuses may have been created piecemeal. Lighter tent-like structures or turf-built cabins would be appropriate to mobile/semi-mobile lifeways and leave little or no trace.

A total cessation of arable activity is not the immediate corollary of disappearing house sites and climatic downturn though. Stevens and Fuller's record of the striking drop (*c.*70%) in the number of recorded crop dates from mainland Britain during the thirty-seventh century cal BC (2012, fig. 5) reflects, in very large part, disappearance of the sources of data. Some 50% of those dates labelled EN from Southern Britain derived from causewayed enclosures and house sites (www.antiquity.ac.uk/ProjGall/stevens333/), where ditches and post slots acted as traps and where excavation is likely to have occasioned intensive retrieval programmes. Subsequent disappearance of house sites, coupled with the move to clean ritual architecture (cursuses and henges), inevitably reduces the sources for cereal evidence. Cereals continue to represent a high *proportion* of the plant types recorded in MN I sites in Ireland albeit, as expected, from a much smaller sample than the Early Neolithic (Whitehouse *et al.* 2014, fig. 11), while Stevens and Fuller's record of continued high numbers of crop dates from the Scottish islands points the same way: far better midden survival there, coupled with funding for research – as against developer funded – excavation, aiding retrieval. Despite these taphonomic caveats, it seems probable that the ending of both house and causewayed enclosure construction 'horizons' are linked to problems with cereal growing that increased over time. A handful of dates attest continued crop growing after 3650 cal BC (*e.g.* Yarnton, Hey forthcoming; Aston on Trent, Loveday 2012) but scarcely any after 3400–3300 cal BC when, in Ireland, bog oaks and pit complexes reach their lowest levels (Whitehouse *et al.* 2014, figs. 19 & 20) and when, in southern Britain, Peterborough Ware apparently became the sole ceramic tradition.

PETERBOROUGH WARE

In southern Britain Peterborough Ware has been the ceramic most frequently recovered from cursus ditches (Springfield, Essex; Drayton North, Oxon; Potlock, Derbyshire; and in early secondary levels at Gussage, Dorset: Buckley *et al.* 2001; Barclay *et al.* 2003; Guilbert 1996, 11; Beamish 2009, 143); the small sherd(s) of plain bowl recovered from primary levels in the Gussage ditch are eroded and may therefore be residual (Cleal 1991, 152). Peterborough Ware has also been recovered in some quantity from the ditches of

a long enclosure of related type at Netherfield Farm, North Petherton, Somerset (Mudd & Brett 2012). Dating of the ceramic tradition remains insecure as relatively little has derived from secure closed contexts but a recently obtained date from residues in a sherd of Ebbsfleet style found close to the type site in Kent (NZA-29079 4723 $\pm$ 35 BP; 3640–3370 cal BC: Barclay 2008) is indistinguishable from those of the earlier southern cursuses (*e.g.* Greater Stonehenge: OxA-17953 4716 $\pm$ 34; 3632–3375 cal BC; OxA-17954 4695 $\pm$ 34; 3630–3370 cal BC: Thomas *et al.* 2009). Modelling of the available radiocarbon measurements for Peterborough Ware suggests the tradition commences 3625–3380 cal BC (94% probability) and probably 3550–3445 cal BC (68% probability), and ends 2925–2660 cal BC (95% probability) and probably 2910–2795 cal BC (68% probability) (I am very grateful to Peter Marshall for this information). The Ebbsfleet style commences a century or so before that of Fengate, and the Mortlake style a century or so after that (Marshall *et al.* 2009, 72). Cursus dates are more limited, with very little opportunity to select short-life sources or obtain multiple determinations. Dates between *c.*3600 and 3400 cal BC have been obtained for the Drayton North and Greater Stonehenge cursuses (Barclay *et al.* 2003, 180–7; Thomas *et al.* 2009; Whittle *et al.* 2011, 202; 429) and, less precisely, from *c.*3700–3400 cal BC for the Aston on Trent cursus and 3600 (probably 3500) to 3100 cal BC for the Lesser Stonehenge Cursus (Phase 1) (Barclay & Bayliss 1999; Whittle *et al.* 2011, 201–2; Meadows *et al.* 2012, 109). The dates for Dorchester-on-Thames, Dorset and Potlock cursuses, however, seem likely to fall between 3400–3000 cal BC (Barclay & Bayliss 1999; Beamish 2009, 143) as, it would seem, should that of the Springfield cursus to judge from the presence of Mortlake sherds in the early secondary silts of its ditch (Buckley *et al.* 2001). Cursuses and Peterborough Ware were clearly contemporary phenomena, and from *c.*3300 cal BC probably exclusively so (Whittle *et al.* 2011, fig. 14.109).

The significance of Peterborough Ware remains much debated: originally conceived as the result of native Mesolithic acculturation when a short chronology made this plausible (Piggott 1954), it was subsequently interpreted as, in origin, a lower Thames Valley regional decorated bowl tradition of three succeeding styles (Smith 1974). Dating has called the typological development into question (Gibson & Kinnes 1997; Marshall *et al.* 2009) but the mid/lower Thames remains something of a focus with a major concentration of associated material along the river in west London, most notably antler mace heads (Simpson 1996; Barclay 2002; Garwood *et al.* 2011, 377–81). Some of the mace heads have returned early dates (*e.g.* Windmill Lane 0154C: OxA-13440 4684 $\pm$ 37: 3630–3360 cal BC) (Loveday *et al.* 2007). This raises the possibility of initial, perhaps small-scale, movement across the North Sea by littoral groups (Loveday 2009) or interaction across the divide with Mildenhall Bowl using groups (Cleal 2012). The former might help explain the strongly riverine focus of Peterborough Ware (Holgate 1988, tab 12; Barclay 2009; Hey 2011, 253–6) – groups primarily focused on a herding, hunting and gathering regime more readily adapting to climatic conditions that no longer favoured dependence on arable cultivation. Bird bone, quill and cord impressions on pottery might then have functioned as cultural signifiers as other groups identified with the lifestyle and its undoubted accompanying beliefs. The (not uncommon) deposits of Peterborough Ware in the blocking of chambered tombs in the Cotswolds and north Wessex, and in the secondary silts of long barrow ditches, often accompanied by evidence of woodland regeneration (Evans 1990), argues for continuity

of recognition of the earlier monuments, although that could have been iconoclastic rather than respectful. The fact that the ceramic tradition expanded to cover virtually the whole region across which causewayed enclosures had been built but that local clays/inclusions were employed (Gibson 1995; Mudd & Brett 2012, 33), suggests ideas were moving into previously well settled areas rather than pots. In contrast, Northern assemblages of Impressed Wares suggest mutually exclusive regional groupings (Gibson 2002; Thomas 1999, 109–11) – a pattern closer to that we might predict in a situation of re-afforestation and isolation.

Slight evidence has been recovered for continued cereal growing: a few cereal grains from an organic deposit on the base of the Potlock cursus ditch (Monckton & Moffet forthcoming) that, elsewhere along its length, produced Peterborough Ware and a date of 3340–3020 cal BC (KIA-2768; 4465 ± 30 BP) (Beamish 2009, 143); cereal grains from the base of the Biggleswade cursus ditch (although the presence of uncharred grains could point to modern contamination) (Abrams 2010, 46; Monckton 2010, 53–4); a few grains in a pit with Fengate Ware 50m from the Drayton North cursus (Barclay *et al.* 2003, 30; Hey *et al.* 2011, 259); and seeds (but unspecified) dated 3320–2690 cal BC (NZA 4696, 4320 ± 80 bp) with sherds of a Peterborough Ware bowl from a pit on the Woldgate at Rudston (Abramson 1996, 8). Against this must be set the very significant drop in the percentage of cereals recovered during extensive and intensive excavation at Yarnton: 80% of all cereals came from Early Neolithic contexts although middle and late period features were more numerous, while proportions, relative to wild foods, fell from 37% to just 1–2% (Hey 2011, 258). The dominance of residues of dairy products and ruminant fats in lipid analysis of Peterborough Ware pots (Woodward 2009) and of cattle bones amongst the faunal material from the Drayton North cursus (Ayres & Powell 2003) leaves little doubt that pasturing figured strongly. Very significantly increased use of cave sites at this time (Gilks 1971; 1990; Barnatt & Edmonds 2002) also points most plausibly to encounter in association with widespread pasturing; their often remote, hidden locations implying deeper familiarity with an extensive environment than is likely to have arisen from home-base, peripheral pasturing.

The virtual disappearance of cereal crop dates in the thirty-fourth century cal BC (Stevens & Fuller 2012, fig. 5) then corresponds to the start of the bulk of Peterborough Ware dates (Marshall *et al.* 2009). It seems principally from this period that the ceramic witnesses an unprecedented expansion to cover an area closely comparable to that of the mass of southern British cursuses, several of which (Potlock, Dorchester-on-Thames and Dorset) appear to date to this time (Barclay & Bayliss 1999; Gibson & Bayliss 2009; Beamish 2009, 143). Explanation for dynamic expansion of the ceramic tradition seems likely to be entwined with that of cursus proliferation.

MIDDLE NEOLITHIC II

In Ireland Whitehouse *et al.* (2014) recognize the minimum level reached in the bog oak record (≈ 3300 cal BC) as a critical division defining the opening of the period they designate Middle Neolithic II. For ease of reference and because a plateau in the calibration curve allows no finer chronological distinction across the period from 3300–2900 cal BC, the same

terminology will be used here; Middle Neolithic I being taken as the period from 3500 BC when causewayed enclosure construction ceased. Middle Neolithic II witnessed a dramatic change: the appearance of individual burials, usually under round barrows, accompanied by elaborate artefacts (Kinnes 1979; Gibson & Bayliss 2009; Loveday & Barclay 2010). The move to individual accompanied burial is most clearly evident in eastern Yorkshire where mounds survive to protect the burials and where grave goods are at their most varied and elaborate (Kinnes 1979; Loveday & Barclay 2010, table 6.1). The remarkable burial sequence in the shaft grave at Duggleby Howe has been dated and shown to run from the primary burial in the thirty-fifth century cal BC, through to a spectacular burial (G) replete with antler mace head, large, partially polished flint adze and lozenge shaped arrowhead in the thirty-third cal BC, and hence to burials C and D (also accompanied by fine artefacts) in the thirtieth century cal BC. Barrow building followed in the twenty-ninth century cal BC (Gibson & Bayliss 2009). Similarly accompanied burials have been dated at Whitegrounds, Malton, North Yorkshire to 3520–3020 cal BC (95% confidence; weighted mean of HAR-5507, 4480 ± 90 BP, and HAR-4932, 4670 ± 110 BP) (Brewster 1984) and Liffs Low, Biggin, Derbyshire to 3350–3100 cal BC (SUERC-26173 (GU19925) 4510 ± 30 BP: 95.4% confidence) (Jay *et al.* 2010).

Contemporary sites in southern Britain are rarer and invariably plough razed. Designated as ring ditches, mini henges or hengiforms, and often lacking evidence of a central burial they are usually interpreted as open enclosures – Lynch Hill Corner, Stanton Harcourt and Mount Farm, Dorchester-on-Thames excepted. Such sites cluster around the cursuses at Dorchester-on-Thames and Maxey (Fig. 5.6) (Atkinson *et al.* 1951; RCHM 1960; Pryor 1985). Very unusually site I at Dorchester-on-Thames revealed fragmentary evidence of a surface laid crouched inhumation within its interior (Atkinson *et al.* 1951, 12). This could only have survived if it had been furnished some protection – from carrion feeders at the time, and subsequently from agricultural erosion. Major Allen's comment accompanying his publication of the Dorchester cropmarks provides the answer: “near the Dorchester to Abingdon Road there is a small enclosure which apparently contained a round barrow and there is a *slight mound* on the ground at this point” (1938, 169 – my italics). Probable inclusion in roadside pasture/common had ensured survival of site I's mound, whereas comparable, adjacent sites II and XI were plough razed removing any evidence of earthwork or possible surface-laid burial. Surface-laid burial was not unusual; it had been normal practice within Early Neolithic wooden and stone mortuary structures, and was clearly evident at the broadly contemporary barrows of Liffs Low and Handley Down 26, Dorset (Barnatt 1996; Barrett *et al.* 1991, 85); the latter possessing a pennanular ditch of comparable plan to the small sites at Dorchester-on-Thames (Barrett *et al.* 1991, 85–90), although some of these seem to have originated as post circles (Gibson 1992). Surface-laid burial is also indicated amongst Beaker users at Aston on Trent I, Derbyshire, where a barrow set within a cursus similarly protected evidence (Loveday 2012).

The potential use of turf for mound construction at these sites (obviating the need for deep quarry ditches) also had long antecedents (Hogg 1940; Phillips 1935) and may have represented the preferred contemporary medium for house building (Loveday 2006b). Gravel recorded at a high level along the *inner* side of the ring ditch at Shepperton, Surrey (Jones 2008, 10–11, fig. 5) is consistent with slippage from the gravel capping of a former turf-built mound that conceivably covered a surface-laid burial.

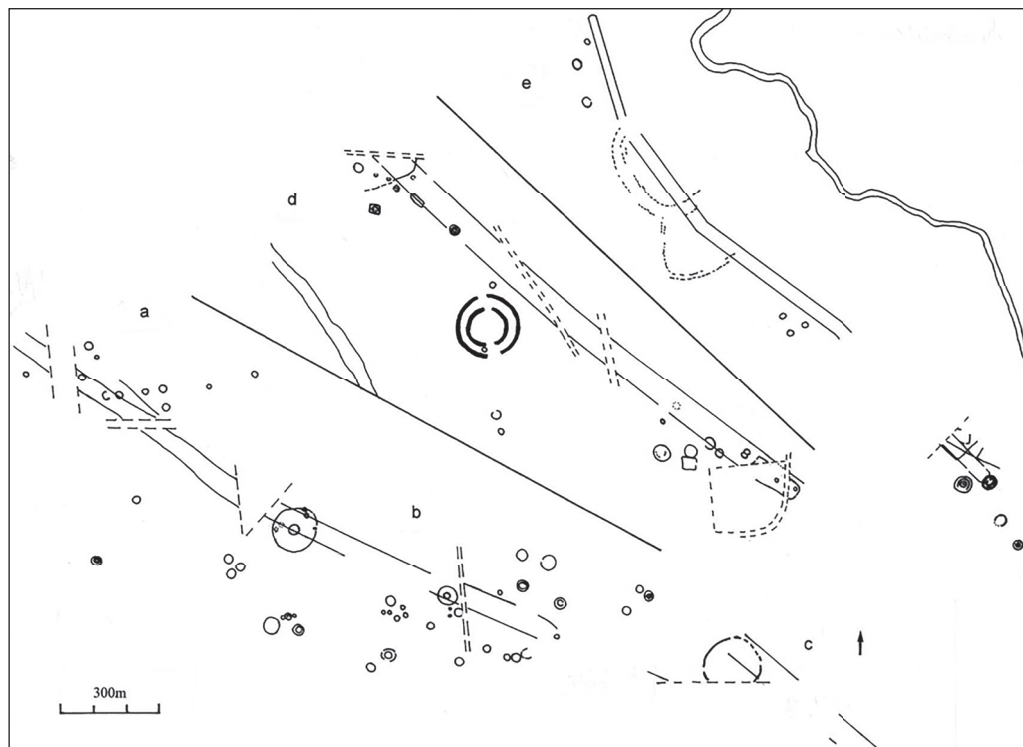


Fig. 5.6: Major Midland-East Anglian cursus complexes. Bottom: Maxey-Etton, Cambs. (a) Maxey NW, (b) Maxey SE, (c) Etton. Middle: Dorchester-upon-Thames, Oxon. (d). Top: Fornham All Saints, Suffolk (e).

Sites at Dorchester-on-Thames and Imperial College Sports Ground, Harlington share a pattern of satellite cremation deposition with Duggleby Howe and their dates, where known, are comparable (Duggleby elaborate burials *c.*3300–2900 cal BC; Dorchester XI antler pick 3300–2780 cal BC; Imperial College Sports Ground cremations 3200–2900 cal BC) (Gibson & Bayliss 2009; Whittle *et al.* 1992; Garwood 2011, 15). A detailed programme of dating is now needed to clarify the sequence of cremation deposition at Dorchester-on-Thames. Meanwhile we might note that the apparent popularity of the practice at a few focal sites during Middle Neolithic II (potentially – as suggested above – in association with inhumation burials) points more readily to a novel dedicatory rite than to a very significantly increased representation of normal mortality (Loveday 2002). The fact that at Duggleby Howe – where, as at Dorchester-on-Thames, cremations were represented in very high numbers – several inhumation burials have revealed evidence of violent death (Gibson & Ogdén 2008) appears to leave little doubt that sacrifice was being practised (but see Garwood 2011, 401–2 for discussion of the arguments against and in favour of an alternative, devotional, case).

Whether we choose to use the term ‘prestige’ for the artefacts accompanying individual burials or the less laden ‘elaborate’ (Edmonds 1998), there is no doubting their status role.

The time lavished upon their production and their virtual standardisation implies skilled crafts workers, the presence of whom are a defining element of elite dominance. The fact that such a society developed as grain growing drops almost totally out of the record argues that it was primarily a product of pastoralism, and here again the evidence from eastern Yorkshire is illuminating. Over 30 years ago Terry Manby noted that the contrasting distributions of completely ground flint axes (widespread and strongly represented in lowland areas) and edge-ground flint axes (overwhelmingly concentrated on the Wolds) seemed likely to reflect a shift from the exploitation of many soil types to a concentration on upland calcareous soils, presumably as part of a transhumance cycle (1979, 77–8). Recently strontium and oxygen isotope analysis has demonstrated that none of those buried at Duggleby Howe came from the chalk (Montgomery *et al.* 2007; Gibson and Bayliss 2009, 73) and environmental data demonstrates that the monument stood in an established open environment (Allen 2011). Lack of permanent domestic structures reinforces the point. It is the absence of houses and of substantial fields, which invariably leads pastoral groups to focus instead on small, mobile wealth items.

CURSUS BUILDING AS AGENCY?

As cursus monuments appear to stand at the head of these developments that are linked through fleetingly visible Peterborough Ware or associated artefacts, could the building process itself have been the agency of change? Cursus size alone implies very substantial gatherings. These are a particular feature of mobile lifeway since they furnished a mechanism for the near universal prescription to ‘marry out’ (Renfrew 1993), achievable in sedentary societies by simply visiting a neighbouring settlement. They could also encourage a sense of wider identity – even ethnicity – vital, we must presume, in the Middle Neolithic if there was pressure on available pastures. Cursuses, with their massively expanded house plan forms, would appear ideal constructions to materialise such a sense of expanded identity. And if, as seems likely, they were sited on collective pasture lands they may have been less disruptive than first appears – conceivably being left open to pasturing during summer assembly of the herds and only ceremonially ‘re-commissioned’ on dispersal: to the collective ancestors and deities invoked to protect the land until the herds returned in the spring. Such a role would explain the colossal jump in monument size that cursuses record: as products, not of a locally resident group whose landscape they would have disrupted, but of a very large transient group defining shared identity in a time of significant change.

Ritual sanctioning of collective pasturing, and of expanded identity, could be expected to elevate a location from ‘significant’ to potentially cult standing. Over time, that in turn may have encouraged movement for more overtly religious reasons – the festival pilgrimage process, as seemingly evidenced at sites such as Dorchester-on-Thames (Loveday 1999a). Long distance replication, a feature of the festival pilgrimage process (Loveday 2006a, 148–54; forthcoming a), certainly seems evidenced by the close similarity of complexes such as Maxey and Dorchester-on-Thames (Fig. 5.6). Alignment ranges also link these sites, as they do the precisely rectangular grouping (Bi type) of the Upper Thames Valley and the Holywood cursuses in Dumfriesshire; placement of the latter in relation to the

Curriestanes cursus recalls patterning around Dorchester-on-Thames (Loveday 1999a; 2006a, 137–42; Thomas 2007).

Cursus construction and a nascent festival pilgrimage process might then be advanced as agents of ethnogenesis in a changing world, Peterborough Ware spreading along with attendant practices, sacred and profane. Parallels for such expanded identity can be found in the confederation of the Iroquois that appears to have been a response to debilitating strife. Through its five (later six) nations of hunter–horticulturalists it came to cover an area some 500km × 300km, equivalent to the southern British region under discussion here. Interestingly, as argued with regard to cursus plans, it was conceived in terms of a greatly enlarged house: the confederation was known to its members as ‘The Lodge Extended Lengthways’, and the component tribes as ‘The People of the Longhouse’ (Morgan 1993). Archaeologically this ‘League of Peace’ manifested itself in the transformation of local traditions, particularly ceramics, into near homogeneous ones (Tuck 1980, 83), the pattern apparently presented by Peterborough Ware. Fifty sachems representing all the tribes met at great councils held in the land of the central tribe, the Onondagas (‘the Fire Keepers’) but no great emphasis was placed by the Iroquois on ceremonial. A people that did so were the Blackfoot. The apex of their annual hunter–forager circuit of some 800km was the Sun dance ceremony. For this several neighbouring groups assembled at a favoured location – often a river confluence although no cosmological significance appears to have been attached (Oetalaar 2012). As with the Iroquois, however, the locations chosen for assembly were not monumentalised. Galaty (1991, 192) has emphasised the importance of ritually defined occasions for mustering and massing (through age-set grouping and the creation of ritual villages) as a factor in the expansion of the Maasai of Africa, a classic pastoral society. At their greatest extent they occupied an area nearly 1000km in length and 300km in width. Yet again monuments were not a feature.

A society that was engaged in monument building – and in a form closely comparable to that of cursuses – is to be found in the Hopewell (Middle Woodlands) of Mid-west USA. The Hopewell phenomenon appears to have expanded from a number of regions, primarily by the Mississippi–Ohio riverine routes of interaction, to eventually cover an area some 1600km × 800km (Charles 2012), vastly exceeding the c.400 × 250km area under discussion here. The earthwork enclosures and collective burials under mounds that accompanied it, particularly in central and southern Ohio, have been interpreted as facilities intended to create new symbolic communities as separate groups converged on, and actively reclaimed, highly diverse and productive riverine ecozones abandoned nearly a millennium earlier as a result of climate change. There are echoes here of the British Middle Neolithic situation but this society was equally prehistoric. Interpretation is based on the overwhelming collectivity of burials, by no means a certain index of societal form. Fine objects placed with burials in log-lined tombs and the placing of simple graves around central tombs (Milner 2004, 68–9) points to lineage elevation at least and, not inconceivably, to accompanying retainer/captive sacrifice. A linked series of ‘Big Man’ societies seems probable. When we do encounter monument building in the *historic* record of North American native societies it is firmly associated with a politically and socially highly structured society – the Natchez (Spencer & Jennings 1977, 414–24).

MONUMENT BUILDING – COLLECTIVE OR SECTIONAL?

The Natchez evidence may, of course, record the end point of prolonged political development during which specific lineages had gained control of a cult site(s) and subsequently used that position to justify elevation (*cf.* Barrett 1995). The fact remains, however, that we face problems in seeking ethno-historic parallels, in North America and elsewhere, for hypothesised, primary egalitarian phases – the building of *substantial* monuments to create or reinforce community bonds, rather than to emphasise status differences. Globally the construction of smaller megalithic tombs and the erection of standing stones (even circles) may carry little or no implication of ranking (*cf.* Richards 2013, 6–9; Jousame 1987) since they are drawn from a suite of common responses to memorialising the collective or specific dead. *Substantial* monuments on the other hand invariably demand greater planning and work force marshalling and are thus unlikely to have been collective responses in the face of loss. Nor, unlike ‘Men’s Houses’, could they be said to furnish a clear community need. As in early Mesoamerican settlement hierarchies it seems “public spaces and ceremonial facilities generally appear first in regional centres (Flannery 1976) where they serve as the central focus of power, representing the elite monopoly on civic-ceremonial activity” (Earle 2002, 356–7).

When addressing the British situation it may be reasonable to take the position that “... monument construction (cannot) be taken out of context to imply the existence of a societal type (a chiefdom) for which there is no or little other supporting evidence” (Whittle 1997, 147) but only if clear alternative evidence can be mustered of major construction in minimally structured contexts. Familiar examples of mass/democratic involvement do not bear scrutiny. Accounts stressing mass involvement in the wave of competitive cathedral building that gripped France in the twelfth century AD almost certainly represent legitimising plagiarism by medieval chroniclers of Abbot Suger’s account of the building of St Denis, itself a glorification and justification of action (Panofsky-Soergel 1979; Frisch 1984). These accounts were used in the nineteenth century to evoke a romanticised picture of a religious golden age, but in reality pious volunteer labour was episodic at best, even the apparent mass response to the burning of Chartres cathedral in 1194. Restricted to the hauling of stones, it could have played only a negligible part in actual construction (Gimpel 1961, 72). The major collective contribution came from monetary gifts raised by appeals to civic pride and offering unearthly rewards or penalties – an individualising, but otherwise common, ideological justification of tribute. In another familiar context, the monuments of democratic Athens, whilst officially collective, were recognised as proclamations of the wealth and power of the rival elite families who financed them, while Pericles’ grandiose acropolis reconstruction programme, financed from the ‘allied’ defence chest, was intended to signal Athens’ rightful place as an *imperial* capital and his position as leader (Holland 2005). Power and prestige were the prime movers in each case, competitive civic pride being harnessed to justify the projects. Similarly in traditional societies obligations, or campaigns, of communal labour to ensure divine favour commonly cloaked the power of elders or chiefs claiming unique intermediary access (*e.g.* Kirch 1984; Earle 1997).

Extremely rare examples of monument building from within pastoral societies include the prophet mounds of the Nuer and Dinka of Sudan and the Zimbabweans of southern Africa.

The former – large but uncomplicated mounds – appear to have been built by communities in response to the calls of great spiritual leaders to honour a sky spirit and to increase a prophet's own prestige (Whittle 1997, 148–9). Arising within a decentralised society lacking a structured religion, these mounds have relevance to the British Middle Neolithic, yet lacked the repetitively planned elements that characterise the cursus phenomenon. The Zimbabwe of southern Africa by contrast were monumental elite compounds, outside which the majority of the population lived. They were placed some 150km apart (100km in closer cases) and, as in the later Zulu state, the most powerful chiefdoms thus defined correlated with the best grazing land (Barker 1988). The residential aspect of these centres sets them apart from clearly ceremonial cursus complexes but their geographical spacing and association with grazing land commands attention, as does the almost certain association of their monumentalism with social differentiation.

At a general level then it does appear that, with very rare exceptions, major “monumental construction is not found in egalitarian societies” (Earle 1997, 157), and is an even rarer element of pastoral ones. This makes the case for cursuses as collective, integrative centres wherein Middle Neolithic society was formed (*e.g.* Loveday 2011), a difficult one to sustain. In defence it could be argued:

1. That cursus builders were not in fact Peterborough Ware using pastoralists but Decorated Bowl groups who had previously forged regional identities. The evidence reviewed above scarcely admits such a possibility. It must also be questioned whether such colossal monument could have been built by groups whose continued existence after the mid-fourth millennium cal BC is evidenced largely by the limited primary-use phases of causewayed enclosures (Whittle *et al.* 2011, figs 14.94–99), unless of course the distinction is false – pot styles reflecting arenas of use not cultural affiliation.
2. That cursuses were essentially transitory, and monumental only in horizontal scale. But respect for some precincts over potentially a millennium (*e.g.* Dorchester-on-Thames, Oxfordshire, Aston on Trent, Derbyshire, Hindwell, Powys), the clearly deliberate placing of Beaker burials along ditch lines, and the mirroring of monuments by later field ditches all point to the fact that these monuments were long term features of the cultural and physical landscape. The Greater Stonehenge Cursus in fact appears to have been the first major monument to be built in the Stonehenge landscape and to have retained its significance into the early Bronze Age (see below).
3. That cursuses were not huge planned entities but the aggregate result of small scale episodes of ditch digging undertaken by groups with minimal direction (*cf.* Pryor 1985; Barrett 1994). Whilst arguable in the case of sites demonstrating clear ditch line irregularities, it does not apply to most southern sites (*cf.* Buckley *et al.* 2001) and fails to explain both ‘completion’ to a common template and longevity of respect for the totality of monument confined (2 above).
4. That it is the smaller, long enclosure sites that are representative of the formative, collective element. But contrary to expectations (Loveday 1985) they almost exclusively date to MN II, *after* several colossal sites (*e.g.* Normanton Down; Raunds; North Petherton).

5. That pilgrimage possesses its own dynamic distinct from the processes of polity building. It is certainly effective in spreading architectural form, examples being the major churches along the routes to Compostella, Benedict Biscop's churches at Monkwearmouth and Jarrow, and the Orkney Earls' round church at Orphir. But each of these cases resulted from journeying by members of an elite – ecclesiastical or secular – in a society where shared ideology furnished a significant measure of safety. How readily can we transpose this to Middle Neolithic Britain (Loveday forthcoming b)?

Monument outcomes from simple intergroup contact and the spread of a common ideology linked to pasturelands are likely to have varied considerably within a common theme and to have exhibited ditch line irregularities as a result of gang labour. The opposite is the case (Fig. 5.7). There is a remarkable quality to cursus construction across most of southern Britain that bespeaks close control. The ditch-line crop marks of the great complexes at Dorchester-on-Thames, Maxey-Etton and Farnham All Saints, (Atkinson *et al.* 1951, frontis. & pl. 1; Whittle *et al.* 2011, fig. 15.20), and of the remarkably rectangular and unified Bi series (*e.g.* Buckley *et al.* 2001, fig. 3; Barclay *et al.* 2003, pls. 10.1–2), exhibit ruler drawn precision (Figs. 5.6, 5.7 & 5.8) Maxey NW excepted. This precision is almost totally absent north of the 150km divide that separates southern and northern sites (*cf.* Stoertz 1997; Harding 2013). It is difficult enough to achieve in layout but even more so to maintain during digging. Over seventy metres of ditch was excavated at Maxey but its profile proved consistently broad, flat-bottomed and very shallow (some 2m by 0.2/0.3m), even where protected by a covering barrow (Pryor *et al.* 1985, 59–62; 247–9). Equally extensive excavation of the ditch of the Springfield cursus also revealed a strikingly consistent, but different, profile (the majority of sections varying only from 2.40m to 2.60m in width) (Buckley *et al.* 2001, 110; 115–7). Had the profiles of earlier lengths of ditch simply been copied by groups returning annually to extend a monument, progressive sectional shallowing should be evident since over winter silting is known to be rapid on gravel soils.

At least 9000m of regular ditch line has been recorded from the air at the great river valley complexes (Fig. 5.6) and over 18,000m at the principal Bi, rectangular sites (Fig. 5.8). Together with some 3000m of the Potlock cursus a minimum figure of some 30,000m (30km) is reached. Discovery that part of the Biggleswade ditch was fully silted before a further section was added (Abrams 2010) reduces the magnitude of these figures but that site presents a more irregular image as a cropmark than other rectangular sites (Loveday 1985, corpus no. 31, fig. 2). It has, therefore, been omitted from the calculation along with others of less regular appearance. There is currently no way of establishing the level of contemporaneity of these monuments but the regional distinctiveness of their precisely ditched confines (*cf.* Buckley *et al.* 2001, fig. 3; Barclay *et al.* 2003, pl. 10.1 & 10.2) – matched only by the much later, and closely juxtaposed, Thornborough henges (Harding 2013, fig. 6.4) – argues for shared expertise and esoteric knowledge. It is almost inconceivable that the Bi series – so precisely rectangular that they were initially mistaken for Roman sites – resulted from simple down the line emulation.

Establishing common architectural templates for ritual structures seems, like the act of construction itself, to have commonly involved both power and direction. Emulation was a secondary process. Thus although the great ziggurats of Mesopotamia have been

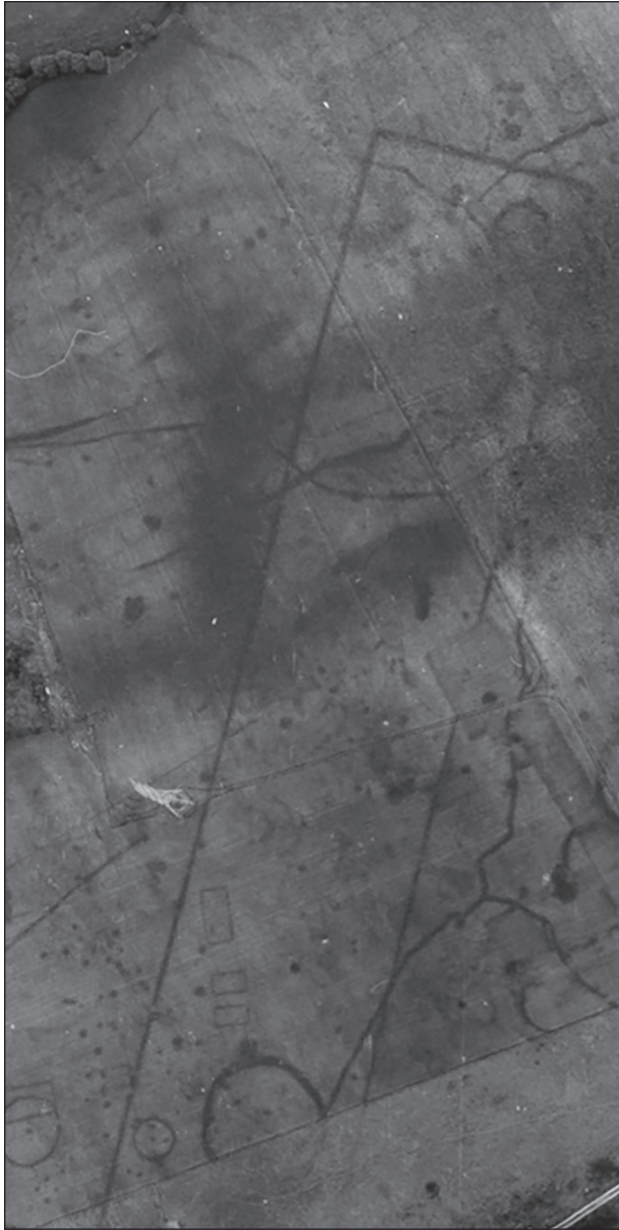


Fig. 5.7: Aerial view of the southern end of the Drayton South cursus (Bi type). (© Crown copyright. EH).

advanced as examples of peer polity interaction (Renfrew 1986, fig. 1.14) they were in fact features of the dynastic period; formulated (from earlier, more heterogeneous, temple-platform sites) to express the widespread power and divine sanctioning of the rulers of, initially, the IIIrd dynasty of Ur (Roux 1966, 151–2; Oates 1986, 45; Postgate 1992, 112–4;

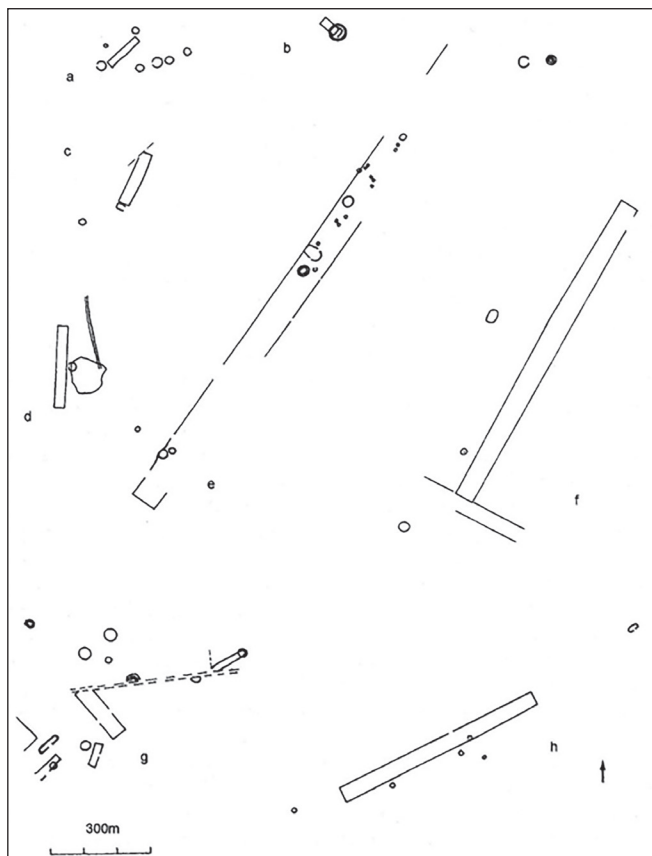


Fig. 5.8: Rectangular Bi type sites: a) Barnack, Cambs; b) Charlton, Warks; c) Barford, Warks; d) Longbridge, Warks; e) Aston, Derbs; f) Benson, Oxon; g) Cardington, Beds; h) Springfield, Essex.

Leik 2001, 128). Similarly adoption of the basilica as the model for the first Christian churches resulted not from the religion's association with Roman administration but from Constantine's sponsorship and desire to demonstrate Christianity's new officially favoured position. The fact that the long-lived Meso-American pyramid template originated in elite dominated Olmec society leaves little doubt regarding the initial impetus to construction and later Mayan inscriptions confirm such structures as common symbols of divine kingship, deployed by opposing polities to weld together their galactic states (Sharer & Taxler 2006). The origin of Greek temples architecture furnishes a contrary peer polity interaction case (Snodgrass 1986) but subsequent history follows the Meso-American pattern with temples acting as manifestations of the power and prestige of city states and their colonies, and ultimately that of imperial Rome. If not initiation, then formalisation and deployment of ritual architecture appears to take place in contexts of power rather than equality. Its value is clear: homologues signalling shared conceptions of social, as well as cosmological, order (Garwood 2007, 203).

Such ideas sit uncomfortably with current interpretations of Mid-Late Neolithic southern Britain. Nevertheless to do justice to the evidence we should ask whether these might not have arisen from the peculiarities of the Late Neolithic Grooved Ware phenomenon that appears to have repressed individual magnification. As the preceding Middle Neolithic comes more closely into focus through accumulating radiocarbon data, it is clear that it exhibits many of the features that might be expected of a structured society: monument building; an apparent hierarchy of sites (based on cursus size and the number of associated ring ditches/hengeiforms); widely spaced major complexes; elaborate burials and prestige artefacts. We should not let our expectations – however subconscious – of evolutionary societal development obscure this. Nor should we assume that climatic downturn would necessarily preclude transition to a more hierarchical society, dependent as that would be on the production of a surplus to sustain an elite group. In a context of negatively impacting climatic conditions, mobility – and by definition pastoralism, if not hunting – is the most effective response for survival. And once established pastoral groups are normally hierarchical; disparities of wealth on the hoof arising more readily than in the grain bin and thus generating ranking.

It is perhaps noteworthy that the sites in southern Britain with the least regular ditch lines (Drayton North, the Greater and Lesser Stonehenge cursuses and the North Stoke bank barrow) have returned the earliest dates whilst several of those with regular ditch lines fall into the Middle Neolithic II period (Aston excepted), along with long enclosures and individual burials. From this perspective, regularly ditched Midland and East Anglian cursuses at spaced locales appear less like experiential copies of other sites and more like planned elements at nodes in a linked network.

CURSUSES, CONTROL AND RIVERS

The geographical nodality of many of the locations chosen for the great cursus complexes would have aided the funnelling of goods and materials from a wide area to attendant assemblies. Control of that process through ideologies linked to the monuments could have legitimated tribute taking and furnished a measure of control over interaction. Most exchange goods are likely to have been organic and thus untraceable but the movement of stone and flint could open a window into the process. This is most clearly demonstrated in the Trent valley between the Dove and Derwent confluences. The Group XX stone source in Charnwood Forest lies 14km south of the massive Potlock and Aston cursuses that are located beside the river, while the densest concentration of these axes occurs some 55km north of the monument zone on the White Peak (Fig. 5.9). Contemporaneity of monument construction and axe movement across the cursus zone cannot be demonstrated but alignment of much later round barrows/ring ditches within the Aston monument leaves no doubt regarding longevity of respect (Loveday 2004; 2012). Similarly the presence of worked flint across the Cotswold Hills, where it does not occur naturally, points to the importation of raw material from the Marlborough Downs, and across the obvious route lies the Buscot-Lechlade cursus complex at the Thames crossing. Movement across a cursus zone also appears to be indicated by activity – probably in large measure extractive – on the clay-with-flint c.5km northwest of the great Dorset cursuses, coupled with concentrations

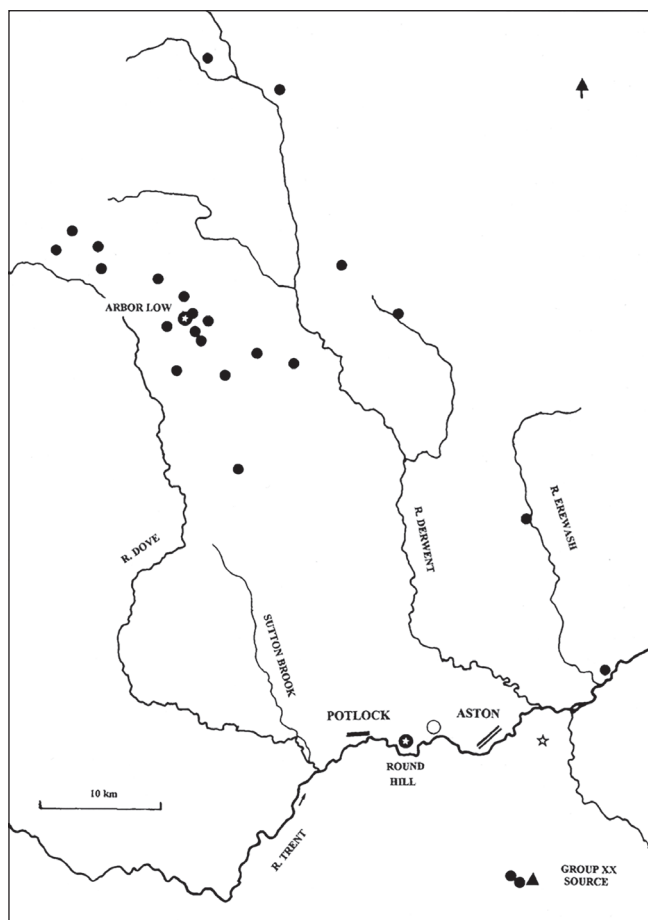


Fig. 5.9: Local Group XX (Chanwood Forest) axe distribution and the middle Trent monument zone (dot: axe find; parallel lines: cursus; dot with star: benge; open circle: Swarkestone nucleated round barrow cemetery; open star: Lockington early Bronze Age dagger and armlet deposit).

of flint work 30km to their south west in the Bournemouth area (Barrett *et al.* 1991, 31–3, 66–9). Terry Manby long ago (1979, 76) made a similar point regarding the intermediate position of the Thornborough complex in the movement of Group VI axes from the Lake District to east Yorkshire.

In this vein it is notable that the great complexes of Maxey-Etton and Fornham All Saints lie near the fen edge since the distribution pattern of Group VI axes suggests it was the rivers of the fen, or the tracks that skirted it, that were the routes by which the axes entered southern Britain from the secondary distribution centre around Rudston (Clough & Cummins 1988, map 6). Although the overall distribution of axes emphasises the North Sea coastline (Bradley & Edmonds 1993) that is not the case east and south of the Great Ouse/chalk corridor, at the end of which arguably lies the Dorchester-on-Thames complex.

Most of East Anglia appears empty and it also lacks a major cursus complex (Last 1999, fig. 8.1). Manby (1975; 2003, 53) has drawn attention to the predominance of Group VI axes in Peterborough ware pits in Yorkshire and such an axe came from a large pit dug close to the axial line of the Maxey South East cursus (Simpson 1985, 249–51). A measure of control (through tribute taking and restrictive redistribution) over the flow of such material through ritualised – politicised nodes during pastoral assemblies could have furnished the basis of elite differentiation.

The close association of Peterborough Ware with rivers, particularly the Thames, is also noteworthy. Attention has been drawn to the far higher numbers of Peterborough ware pots recovered from the Thames than earlier Neolithic ones, as well as the very significant numbers of axes from the same source (Barclay & Hey 1999; Barclay 2002, 90–3), and Frances Healy has noted the contrast between Peterborough ware abundance adjacent to the Thames in Greater London and its numerical scarcity across neighbouring Essex (2012, 15–16). As observed earlier, a riverine focus was a key feature of the extensive Hopewell phenomenon of North America. At a much lower level of prestige goods delineation, but of historical certainty regarding organising social structure, it also characterised the Powhatan chiefdom. That according to the earliest map, covered an area beside Chesapeake Bay over 300km long (roughly equivalent to that under discussion here) and was structured into settlements lacking political leaders, those with local commanders and that of the paramount. Tribute flowed upwards through this hierarchy of chiefly lineages and regional centres. The paramount centre – Werowocomoco – was a place of periodic social gathering and deep history, a ritualised and politicised node with a residential core along its river frontage and a ditch-defined interior producing a higher percentage of non-local ceramics (Gallivan 2012). Specifics of course differ but this tidewater society shared an emphasis on water-side siting with Peterborough Ware users and cursus monuments – riverine transport conceivably facilitating wider political control than would have been readily achievable on foot.

STATEMENTS OF POWER?

If cursus monuments as large, well-planned and well-executed as those in the Midlands and East Anglia are unlikely to have been the products of egalitarian or minimally structured interaction (whether transhumance assembly, festival pilgrimage or elements of both) should we accept them as statements of power? The equation of monument building with power and prestige is near universal since it constitutes their most public material embodiment; exotic artefacts and esoteric ritual procedures being, by contrast, visible only to a few (Trigger 1990, 126). Great religious monuments bore permanent witness to the power of those who organised/financed their construction and quite literally framed ideological perception and discourse in terms of that elite: they alone could be seen to mediate with the gods within them.

Why though would populations have acquiesced to the elevation of individuals? Lineage/kin membership undoubtedly circumscribed identities in the Neolithic, so strong senses of sectional interest are likely to have been evoked if a member of another lineage were to have been elevated. Local disparities of wealth (in cattle) deployed through social debt

inducing potlatching or bride price financing are obvious routes to elevation in mature pastoral society but wider legitimation is likely to have presented difficulties. In the Middle Neolithic context under review here, lineage control of a cult site (*cf.* Quyrash at Mecca) might furnish the least contested route. Earle (1997) has argued that cross culturally an ideology linking chiefs with the gods was a common and crucial strategy, while Drucker Brown has noted the unifying influence of kingship in the heterogeneous Mamprusi region of Ghana; adjacent kin-exclusive regions lack significant ranking (2005, 173–4). Nor need such a role be disassociated from pastoral concerns (Bonte 1991).

The four intersecting cursuses that box in the tallest monolith in the British Isles at Rudston conceivably materialised a pooling of identity within a confederation (*cf.* the Iroquoian) or even a unifying chiefdom/kingdom (Harding 1999; Loveday 2009). Ideas associated with that site may have been transmitted in association with Group VI axes (Bradley & Edmonds 1993), and such items as jet belt sliders that appear as grave goods. We have noted a broad association of both of these with southern British cursuses, or at least cursus zones. Of the southern British cursus complexes, it is that at Maxey-Etton that most closely reflects the multiple monument patterns witnessed at Rudston, and it appears to have lain athwart one of the principal entry routes of Group VI axes. Perhaps additionally significant is the fact that the complex extends across an adjacent causewayed enclosure. This relationship is repeated at the Fornham All Saints complex (also potentially associated with an entry route for Group VI axes) but is otherwise rare. Elsewhere distribution patterns seem mutually exclusive (*e.g.* the Upper Thames Valley where the two types of monument strikingly occupy quite distinct zones: Harding 1995; Barclay & Hey 1999). This intersecting (overlying) relationship could signal respect, sectional seizure of an earlier communal site or iconoclastic slighting, but less debatably it would seem to point to a close temporal relationship – the enclosures clearly remained important elements of the social and physical landscapes. Perhaps significantly at the Etton enclosure Group VI axes dominate the stone assemblage along with Group VII (Pryor 1998), and it is one of the few sites where activity continued for a century or more after construction (Whittle *et al.* 2011, 846).

The Maxey-Etton cursus complex is set apart from others in the Midlands and East Anglia by the sheer number of ring ditches/hengiform sites that cluster around it (Fig. 5.6; RCHM 1960). Unfortunately their erosion by prolonged and intensive agriculture, and subsequent destruction by gravel quarrying without archaeological investigation, has robbed us of vital evidence but the message of their numbers seems clear. This was a particularly important centre over a considerable period of time. That it was also the primary site of the region – the paradigm – is hinted at by the apparent *planned* similarity of the cursuses at Dorchester-on-Thames and Fornham All Saints to elements that, at Maxey-Etton, can be seen to be clearly multiphase (Loveday 2006a, 152–3). Could this then represent a centre from which an expansive political network fuelled by a novel ideology was staking claim to widespread nodal points where groups assembled of communal grazing and interaction? A Greater Zimbabwe-type hegemony is perhaps conceivable. However, to do justice to the evidence any analogy must also encompass the remarkable uniformity of the precisely laid out Bi rectangular sites across the region, and the presence of apparently contemporaneous smaller complexes (Barford-like groups: Loveday 1989), and isolated long enclosures (Fig. 5.8).

The closest ethno-historical parallels for such a pattern appear to lie in the Society Islands and Hawaii (Bellwood 1987; Kirch 1984; Earle 1997). *Marae* (*beiau* in Hawaii) – elongated rectangular courts with platforms across one end possessing standing stones that marked the positions of gods and the principal worshippers – occur throughout east Polynesia and were still being built and used at the time of Cook's visit (Barrow 1860, 401–2). They were a dominant feature of those islands that had developed highly stratified societies and their sizes reflected those hierarchies. The rarer, largest examples were the exclusive domain of paramount chiefs. Within them scenes of sacrifice and elaborate annual rituals to the war god were enacted by paramount chiefs to redefine their political dominance. Smaller *marae* were dedicated to the fertility god and were used by territorial chiefs, while the smallest, and most numerous, were linked to individual households. Associated settlement was generally non-nucleated. By creating cultural homes for the gods Earle has argued, Hawaiian chiefs materialised an emergent ideology that institutionalised their divine roles and unique access to the high gods of fertility and war (1997, 177–83). So close was the divine association on Tahiti, and elsewhere, that the genealogical origin of chiefly families was directly linked to *marae* (Salmon 1910). These rather than settlements were the central places of elite power: as territorial power expanded chiefs' houses were often set on platforms akin to *marae* but there were no truly monumental compounds (*ibid.* 44). Increases in the degree of hierarchy and stratification were accompanied by an increase in *marae* construction, the monuments playing significant roles as visual symbols of chiefly hegemony and dominance (Kirch 1990).

As with analogies previously advanced, specifics differ. These were sedentary agriculturalists/fishers, not pastoralists, and society on Hawaii was approaching an archaic-state level of development at the time of European contact. British Middle Neolithic society appears to fall far short of the levels of social stratification witnessed. Nonetheless, loss of the organic component of the British record must be borne in mind. In Polynesia prestige centred on feathered cloaks, boat building, wood carving, tattooing and, significantly, the building of *marae*. Only the latter would be known if there was a similar five thousand year separation from our own time. The concentration of elaborate artefacts in the Rudston area (Manby 1974) hints at a similarly structured society in east Yorkshire and recent valuable recording of the widespread distribution of one of these artefact types (waisted flint axes/adzes) across southern Britain (Field 2011) could indicate that form of society was more widespread. The organic aspect can only be a matter of speculation.

The value of the Tahitian and east Polynesian evidence lies not just in furnishing a social context for the construction of monuments of common plan at a range of scales, but in providing a mechanism for the proliferation of large-scale examples: warfare. The greatest monuments of these islands were those dedicated to the war god Oro (Ku in Hawaii) and they directly copied that at the god's mythical birthplace on Ra'iatea. Priests of Oro spread the ideology that was adopted by chiefs to justify wars of territorial expansion (Bellwood 1987). In the Society Islands successful paramount chiefs established personal estates in each area taken under their suzerainty, with their own stewards overseeing the land (Kirch 1984, 200–1) – a common approach (through place-men or dependent chiefs) to maintaining tribute in pre-literate societies, invariably backed up by annual visitations. Such a process could be hypothesised in relation to the prime pasture and interaction locales of Middle Neolithic southern Britain, cursus construction potentially materialising

other-world sanctioning of ownership/overlordship, as *marae* did in the Society Islands. The fact that cursuses often appear to have been ‘bolted onto’ earlier long mounds/enclosures is undoubtedly significant. “The linking of places which were traditionally associated with the histories of individual groups could symbolise the centralisation of newly emerging political structures” (Harding 1995, 124). The striking closeness of cursus form and layout across the Midlands and East Anglia strongly suggests that the new cultural – and perhaps political – landscape that they materialised was extensive. This was without precedent. As Goldman has stated with regard to ancient Polynesia: “Kin groups bud, branch and unfold. Territorial groups are created by chiefs. They express human agency. In this expression, they assert a radically new social idea” (1970, 545).

Ideologically justified power and accompanying territorial expansion, rather than the randomised spread of a novel collective belief through festival pilgrimage, perhaps most effectively explains the patterns witnessed in southern Britain: distant spacing of huge sites often at geographic nodal points and possible replication of a paradigm site; shared precision of layout across the Midlands and East Anglia and the apparent hierarchical ordering of sites; and the broad contemporaneity – or close succession – of individual accompanied burial. Although the period lacks the defensive structures we most readily associate with warfare, they had marked the closing of the preceding period (Whittle *et al.* 2011, 716–9) and are, in any case, a very variable barometer of occasional warfare and situations of hegemonic control. Significantly they are absent from the east Polynesian record despite unimpeachable ethno-historic evidence for recurrent warfare (Earle 1997, 133). In Middle Neolithic Britain violent death is evidenced by skeletal material from Duggleby Howe where interestingly, in view of the sudden appearance of mace heads at this time, the skull of burial J exhibits evidence of blunt force fracture (Gibson & Ogden 2011). Novel waisted flint axes of Duggleby and Seamer type were also clearly high status weapons rather than prettified work items.

Such a phenomenon need not have been long lived. ‘Big Man’ societies may rise and fall quite rapidly and, even where authority was institutionalised, cycles of integration and disintegration typically characterise hegemonic expansion. The individual burials with grave goods in the Upper Thames Valley (Mount Farm, Dorchester; Radley oval barrow; Linch Hill Corner, Stanton Harcourt; and Newnham Warren, Wallingford) are linked by the presence of flint knives/blades (polished in two cases) and jet belt sliders. With the possible exception of the Aldro cemetery, this pattern of grave accompaniments is distinct from that of the Yorkshire series (Loveday & Barclay 2010, table 6.1; Garwood 2011, 397–8), and suggests a ‘horizon’ peculiar to the Dorchester-Oxford region (but see Garwood 2011 for a detailed discussion of the conflicting dating evidence). The clustering of cursuses in the same broad area and the possibility, outlined above, that surface-laid burials originally existed within the hengiform/ring ditch sites at Dorchester, could indicate an ideological focus associated with the elevation of individuals. This had certainly shifted some 6km west to Radley by the early second millennium cal BC (Garwood 1999, 293–7). Nevertheless the fact that both classic henge monuments and early and middle Beaker burials are strongly concentrated in the same small region extending some 10km around Oxford (Garwood 2011, 404), and that Radley exhibits one of the very few linear Early Bronze Age cemeteries outside Wessex, argues that power had been institutionalised in this area – adopted and

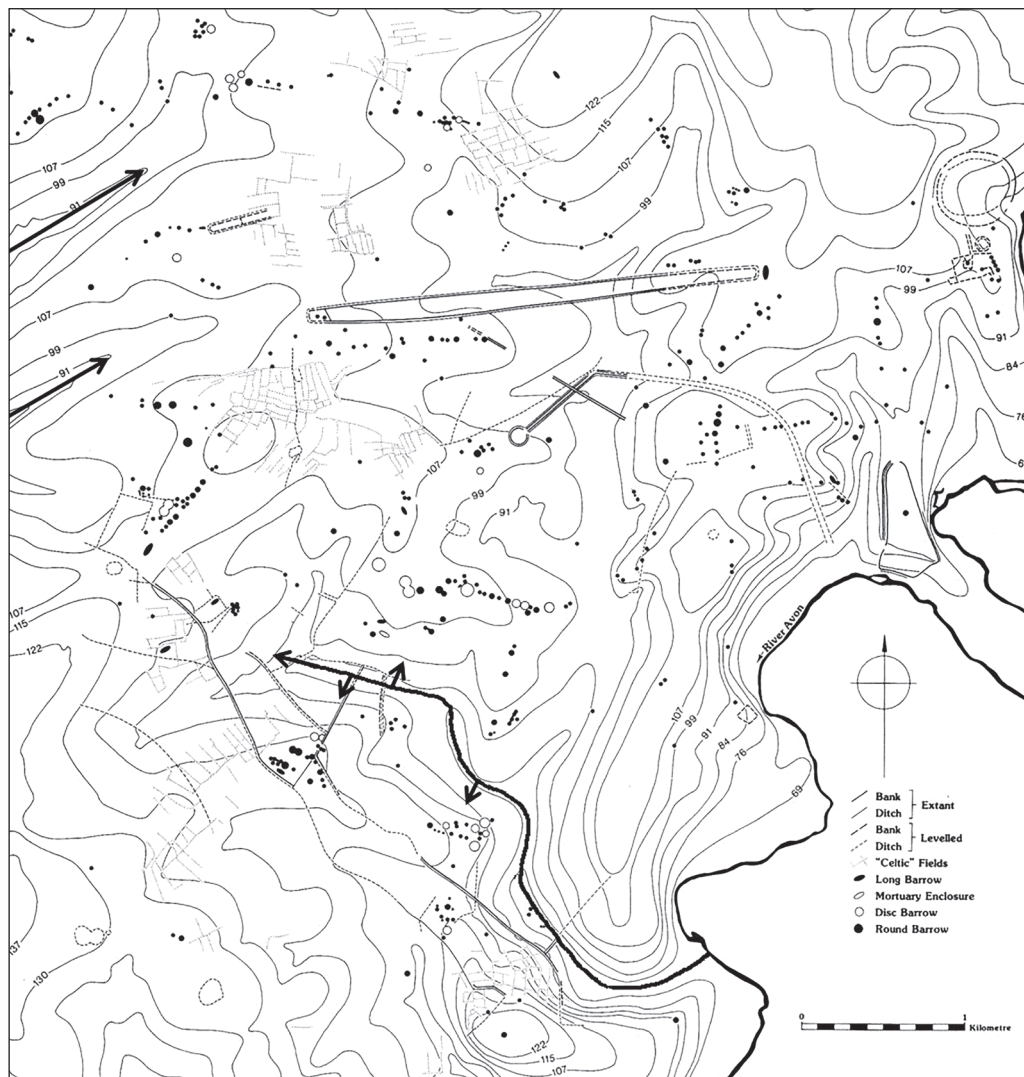


Fig. 5.10: Round barrow distribution in the Stonehenge environs (principal arrow: the Lake-Wilsford valley route with views of the 'Wessex' cemeteries indicated). (© English Heritage).

adapted to succeeding ideologies and locales. Similarly across the Midlands and East Anglia common expertise, materialised in the planning and careful layout of Bi type rectangular long enclosures and cursuses (*cf.* Springfield, Essex; Benson, Oxfordshire; Longbridge, Warwickshire; and Yarnton, Oxfordshire) proclaims a level of connectedness and labour investment that is more readily associated with institutionalised power than short-term direction by a 'Big Man'/charismatic religious leader.

MONUMENTAL OBSESSION

Three short parallel alignment of ring ditches mirroring the south eastern arm of the Maxey cursus (Fig. 5.6b) confirm active respect for this remarkably shallow-ditched structure as much as a millennium after construction. Similar evidence exists at Hindwell, Powys, Aston on Trent, Derbyshire and Dorchester-on-Thames, Oxfordshire; although at these sites the monuments are internally placed. Most striking though is the patterning around the Greater Stonehenge Cursus. As with the other sites, parallel round barrow alignment confirms that the monument had retained (or been reinvested with) its significance after the burial 'blackout' of the Late Neolithic. In this landscape, however, barrows exist in a profusion that allows us to read the wider patterning, and that is very different. Unlike the monument respecting Cursus Group, they overwhelmingly cluster around the upper reaches of dry coombs, often being false crest sited to dominate from valley floors. The dry valley that runs from the Avon at Lake to a point between the Normanton Down cemetery and the Wilsford and Lake groups exemplifies the pattern: from its floor not only are all these 'Wessex' barrows strikingly visible, but so too is the Winterbourne Stoke cemetery at the valley head (Fig. 5.10). By contrast the latter barrows, large parts of the Normanton Down cemetery and most of the Wilsford and Lake groups are wholly invisible from Stonehenge itself. Rather than the barrows respecting the great stone monument, or delineating the southern arc of an enclosing sacred area around it (an idea that seems to owe more to cartography than topography), it seems likely they were intended to furnish dramatic, ancestral backdrops to a high status seasonal settlement locale; significant quantities of Earlier Bronze Age pottery have come from the valley floor near its head (Richards 1990 fig. 159; Loveday 2006c).

The pattern is repeated less dramatically and profusely in this landscape by the Rolleston, Shrewton and Coniger barrow groupings and by those along the valley of the Nine Mile River on the other side of the Avon (Lawson 2007, 209–10). Farther afield it is to be found on Cranborne Chase where it most readily explains the positioning of the Wyke Down and Oakley Down cemeteries that pay scant spatial regard to the adjoining cursus. It is in fact a recurring feature of the Wessex chalk generally and can almost certainly be ascribed to the positioning of the tents/cabins of specific lineages/clans near coombe heads during seasonal transhumance. That mechanism, advanced for Early Bronze Age Wessex by Fleming (1971) and proposed here as the underlying explanation for widely spaced Middle Neolithic cursus distribution, may, at some locales have outlived the political alignments the great linear monuments conceivably materialised. In other cases – Greater Stonehenge, Maxey SE, Dorchester-on-Thames, Aston on Trent and Hindwell – the monuments and their immediate confines appear to have retained an organising significance over the location of burials for certain members of their communities well into the second millennium cal BC. The very limited range of grave goods in the barrows of the Cursus Group (Hoare 29 east/RCHM 44 east, excepted), despite their prestigious proximity to Stonehenge, could indicate that earlier chiefly lineages survived into the changed times of the Early Bronze Age, retaining exclusive ideological control of the great linear monument but lacking access to the wealth items upon which ranking now depended and which were abundantly displayed in the burials girding the Wilsford-Lake valley.

SUMMARY

The wide spacing of cursus complexes in southern Britain stands in stark contrast to that of causewayed enclosures and henges. It demands explanation. That may come in the form of further discoveries from alluvially masked floodplains but there are reasons to doubt this will radically change the picture. The fact that cursus building commences at a time of climatic deterioration that appears to have affected the viability of crop growing suggests they may be associated with transhumant pasturing. Increasingly environmental evidence supports this idea but only strontium isotopic analysis of the limited supporting faunal material is likely to furnish confirmation (*cf.* Viner *et al.* 2010). The slight, but consistent, association of Peterborough Ware with cursuses could relate to closing down activity akin to that witnessed in long barrow ditches but seems likely to relate to construction. The spur may have been attempts to materialise wider group identity in a time of disruption but egalitarian societies do not produce substantial monuments and pastoral societies are notably hierarchical. Dating of both those cursuses exhibiting the greatest care in layout, and individual burials with grave goods, to a Middle Neolithic II period (3300–2900 cal BC) hints at a political dimension. Close association of these two elements at Dorchester-on-Thames and probably Maxey gives support to the idea. Chronological resolution of their relationship will depend on a greatly increased body of dates and a solution to the problem of the radiocarbon plateau. Meanwhile the possibility that cursuses were statements of power in a changed world, proclaiming particular lineages at nodes in a ritualised network, deserves consideration. The close similarity of the Bi rectangular series of monuments across the Midlands and East Anglia proclaims widespread linkages conceivably achieved through warfare. Second millennium cal BC round barrows and ring ditches aligned beside or within several major sites may record descendants of Middle Neolithic lineages or proclaim ideological reinvestment of an archaic political structure by others. Only with the spread of field systems in the first millennium cal BC do cursuses disappear from the cultural scene. Great pastoral assemblies we can assume were now a thing of the past. Whatever went on within cursuses, it is clear they were far from simple ancillary processional structures for earlier mortuary sites. They were the major monuments of a very significant period of change, the first manifestations of the colossal in British monument building with all that implies for social organisation.

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Routeways of the Neolithic

Fiona Haughey

The word ‘mobility’ is quite an emotive term. The average person today would equate this with car, air, or bike travel for the most part, using well-defined routes through the landscape and skies. The advent of planes has meant we are no longer tied to the water when crossing oceans. Yet in the past, water and its supply has marked and defined the way we have explored and lived within the various landscapes both in the UK and abroad. Mobility in prehistory may have been generated by the need to seek for sustenance but the necessary desire for water would have always drawn people back to the freshwater sources within any given area. Routes across any inhospitable region would have been defined and linked by the watering places *en route*.

This paper will explore one particular face of water – the river. In discussion of traversing the landscape, rivers tend not to be a focus of attention with routeways seemingly to be only land based. Given the numbers which litter the landscape, the use of rivers seems to be a topic surprisingly ignored. The majority of ‘prehistoric’ boats that have previously been found in UK are either undated (and often – through lack of conservation – decayed) or Bronze Age in date (*e.g.* the Ferriby and Dover boats: Wright 1990; Clark 2004), and so this might explain why there has been a lack of thought of inland freshwater travel in the Neolithic in this country. An alternative use of the river could have been as a guidance tool or a directional aid for those on foot rather than on the water. There is often evidence of woodland immediately adjacent to running water, as can be seen on the London Thames where submerged forest and scrub is relatively common on the foreshore (Haughey 1999). It is possible that this might inhibit easy movement along the banks. Clearance for settlement and fields almost certainly will have taken place further from the river’s edge, although as seen in anthropological studies, landing places have their own particular role to play (Haughey 2009, 112).

The basic question is not so much how did people travel, but why they did so in the Neolithic period? What are the reasons that cause individuals or groups to leave one place and move to another? It is not an aimless exercise. There is a purpose behind each type of travel. Mobility may mean total movement to somewhere new with no intention to return; it may be travelling there and back in a voyage of exploration; it could be just something smaller where people are seeking sustenance or materials and taking them back to their place of origin. In the following discussion two main avenues will be examined – routeways with purpose and routeways with meaning.

ROUTEWAYS WITH PURPOSE

Exploration

It is only with the advent of airborne cameras and later satellite pictures, and following the clearance of the landscape begun over 4,000 years ago, that river systems have been able to be appreciated in their totality. Previously, rivers with their natural curves and bends could only have been appreciated in smaller sections, and the varying vantage points – that is, in, on or by the river – will each have given a different viewpoint.

Moving water creates an air of mystery in the landscape – where has it come from and where is it going to? It provides natural movement and mobility that can be harnessed within a static vista. Transport along these highways has been noted in a wide variety of locations across the world – fulfilling initially, one suspects, human curiosity and inquisitiveness with a desire to know what lies beyond the bend, out of sight. Canoes were the most common form of transport on many of the rivers around the world, and have a long history of use. In Florida, the extensive wetlands restricted transport primarily to boats and the like, and the state has the oldest and the largest number of prehistoric watercraft in the world. There are more than 340 canoes, with at least six different styles dating from more than 5,000 years ago to the nineteenth century (Purdy 1992, 121).

In Australia, on the Lower Murray River and south-eastern regions at the time of European penetration, bark canoes were common, being simple craft suited to the inland waterways (Mulvaney 1975, 96). They are made from a single sheet of bark stripped off a tree which is usually the river red gum with its thick bark (Presland 1994, 76). In Denmark, boats with paddles have also been identified. Dugout canoes would have been the main means of transporting heavy goods and maintaining personal contacts, as well as facilitating fishing, and examples have been found in former freshwater areas which are now bogs (Koch 1998, 141).

Different types of vessel could have been seen on the Lower Colorado in the southeast of North America. Travel on the river was extensive, but the Yuma who lived there had no canoes or boats. Large ceramic bowls were used to ferry children and goods across the river. Single cottonwood logs were occasionally used to carry a small party or load down-river, and individuals would travel using a form of semi-submerged float. Rafts were made of cottonwood logs or bundles of reeds, bound with hide thongs or twine. Larger reed rafts as large as a house were more buoyant than the smaller ones and more easily constructed (Forde 1965, 127).

Direction

The factor of the unknown as referred to above means actual travel on the river may lead to the unexpected or it may have become, in time, a known route. Rivers are fixed points in a landscape that for the most part may have been hidden from view by any tree cover. The area would not have been visible in its entirety. A healthy river has bends and curves which create a variety of animal habitats, and viewpoints on the bank will have a limited range around those bends.

One other use of a river could have been as an indicator of direction, a necessary marker in a landscape which was, at least in the early period, probably heavily wooded. The Koyukon people in the northwest Pacific use rivers as the key reference point for direction in their landscape comprising as it does not only two main watercourses (the Yukon and the Koyukuk)

but also many lakes and minor waterways. For them, indeed, the “geographic orientation is based on rivers, not on the compass points used by Westerners” (Nelson 1986, 36). The four cardinal directions are used mainly for wind direction. The river is used as the key reference point for direction and distance as well as the river current (Nelson 1986, 36).

Further south, on the Columbia, the *Nch'i-wána* (big river) is named because it is a place of events:

“Columbia River Indians do not usually name mountains and rivers as such. For non-Indians, a focus on specific mountains and rivers as things of importance implies a cartographic perspective, one in which the observer is placed above the landscape as if in flight. The Indians’ land-based perspective named instead specific places on a mountain or along a river where things happened. It was a practical rather than a purely abstract geography, naming culturally significant places, the site of important events or activities, whether of the present or the myth age” (Hunn 1995, 93. Author’s emphasis).

Provision

The mobility in this case, is not by the humans. Aquatic resources are an obvious choice with the fish and waterfowl using the rivers as routeways on a seasonal basis. In northwest California, Native American Indians who lived on the anadromous fish resources of the major freshwater river drainage of the area had highly ritualised regulations within their fishing activities (Swezey & Heizer 1984, 974ff). The Yurok first-salmon ceremony was performed at Welkwäu, at the mouth of Klamath River before which no salmon could be caught although it was permitted to fish for other species. The person selected had to pretend to spear the first salmon seen and then secured the next which was then cooked in the ceremonial house before being ritually consumed. It was only after this that the salmon season was declared open (Swezey & Heizer 1984, 976–7). Other groups such as the Karok and the Hupa had similar rituals and it was only after these three ceremonies were over that fish weirs and dams could be constructed across the river (Swezey & Heizer 1984, 977). On the north-west Pacific coast of North America, the migration of various species of salmon has supported a complete culture and style of life amongst the early nations. This migration can be by either anadromous or catadromous fish (Haughey 2009, 515)

The Fraser River has been in the past, and still is, “one of the greatest producers of salmon in the world” (Kew 1992, 178). There are five species of Pacific salmon currently in the Fraser: chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), chum (*O. keta*), pink (*O. gorbuscha*) and sockeye (*O. nerka*). Many of these are also found on the Columbia. After being hatched in freshwater, the fish journey to the sea before returning as adults to spawn in their natal streams. For the indigenous people, the regular and predictable return of each run of salmon meant that they could be relied upon as the major protein element of the people’s subsistence (Turner 1992, 418).

Position

The word ‘mobility’ suggests not only travelling but also connection. The length of the ‘journey’ maybe only be short but the beginning and end points might be very different and have other associations. On the other hand, the route might cover vast areas, linking a wide range of people as well as a vast physical expanse. Two examples from the Amazon basin illustrate these extremes. With the rivers within the Amazon basin and the canoes each village possessed providing a readily available transport system; a large trade network

existed successfully in the region. This was particularly noticeable when the various water systems were in flood. An example of the wide range of this network can be seen in the production of ceramics among the Shipibo who live in the Peruvian area to the western end of the river system. The pots which are identified as Shipibo require clays and slips of various types to produce and these come from a variety of places from within half a day's journey to c.107km away down the Ucayali River (Lathrap 1973, 171–2). Roth wrote in 1924 about tribal networks that spread from the north-eastern corner of tropical South America which typified the range of materials available for trade: “The Otomac women were noted for their clay pots; the Arekuna for their cotton and blowpipes; ... the Guinau for their hammocks, cassava graters, aprons, girdles of human hair, and feather decorations; the Oyapock River natives for their ‘spleene and mateate’ stones. Nothing came amiss, a market being always forthcoming sooner or later for everything ...” (Roth 1924, 635).

The particular trade network that these integrated with measured roughly 1600km north to south and east to west in an oval shape and also articulated with the main system in the Amazon (Lathrap 1973, 172). Local trading existed between nearby communities where most of the commodities such as pepper, tobacco, basketry and pottery could “equally have been produced at home” (Hugh-Jones 1979, 169). Other items included ritual paraphernalia that were part of a continuous exchange between geographically distant communities who were related through marriage.

On a much smaller scale, landing places, which are the contact point with the rest of the world for the Tukano villagers in the Amazon, are also the places at which they are intimately involved with the river. The link is not just on a practical level (here they step off and on from vessels to dry land) but also a spiritual one. It is here that sexual activity is undertaken (not in their houses) and has a ritual/erotic atmosphere when compared to the rest of the village (Reichel-Dolmatoff 1996, 140). It is where the ‘Master of the fish’ seduces women who walk alone, causing them to die before changing into a shoal of fish or fish women (Roe 1982, 232). This connection between licentious behaviour and the river can be seen in many tribes in the Amazon basin. So the link between a long/short physical journey and a long/short emotional journey is very strong when a river forms part of that movement.

Protection

A river can provide shelter and protection to those travelling along it, for both short- and long-term use. Crannogs or artificial islands, found on rivers and lakes, date from the early Neolithic until the post-medieval periods but other, more natural, places have also been utilised. On the Thames, two examples stand out for the Neolithic period. At Runnymede, during excavations for bridge works, the Bronze Age material is well documented but there are also earlier phases of use in the Mesolithic and Neolithic periods (Needham 1985; 1991). The island would have existed between a number of channels and shows evidence of occupation during the Early Neolithic (Needham 2000, 224). A possible fish trap can be traced here too (Needham 1991, 38). Downstream at Chiswick in West London, one of the eyots, or islands, still extant has produced a range of Neolithic flint tools suggesting the use of the island on numerous occasions, if not long term (Haughey 2009, 187). Within the Greater London area, a number of sites by channels/on island edges also indicate a preference for this type of location (Haughey 2009, 188–9, Table 8).

ROUTEWAYS WITH MEANING

Walking on dry rivers

Mobility can be for other than the more prosaic reasons of getting from A to B, and possibly back again. It can also be a state of mind which relates to other facets of life that do not necessarily include a physical dimension. Causewayed enclosures and cursus monuments typify this other dimension.

Causewayed enclosures as a class of monument belongs to the earlier Neolithic “but not to its very earliest stages” with c.3700 to 3300 BC marking its peak (Oswald *et al.* 2001, 3). Of the 111 possible examples known in England to date, it is noticeable that 49 or 44.14% are to be found within the Thames Basin (Oswald *et al.* 2001, 149–57). The choice of location of the enclosures is also notable; with a few exceptions, all the sites are on or very near watercourses. The exceptions are found on heights from which it would have been possible to see rivers or streams (Haughey 2009, 193–4, Table 10). The relationship between the enclosures and associated watercourses is patent.

Metaphorically speaking this close association brings the water onto the land in a more accessible way. Those examples found on heights have the potential to view rivers from parts of the enclosures. Deliberate depositions into the ditches parallel deposition into the rivers. Where some of the enclosures ‘touch’ the adjacent river (Abingdon, for example) this might be seen as an even closer tie between the dry river and the wet river. It could be interpreted as the need to approach either the river through the enclosure or conversely the enclosure via the river but does not indicate the need to avoid the water. Symbolically the need to go through the water to reach the enclosure would bring the river onto the land, so to speak. Causewayed enclosures are to be found in other locations near water in Europe. Denmark saw them appear, in the earlier part of the Neolithic period, in a similar style to those in Britain. Those which have been identified are “characteristically located on low promontories at valley bottoms surrounded on two or three sides by rivers, streams or bogs” (Tilley 1996, 280).

Cursus monuments are frequently found in many parts of the country and they are not uniformly spread across the Thames Basin. Their numbers are much smaller than causewayed enclosures too and in the Upper Thames valley there are ten. In many cases, the cursus, if extended, would seem to cross the river/tributary. While not uniform in all cases, confluences (here of the Leach, the Ock and the Thame with the Thames) are places that attracted builders of these monuments.

In the Middle and Lower Thames Basin, cursus monuments are rare. The only certain ones at present are at Sonning (Berkshire), Stanwell (London Borough of Hillingdon) and Springfield (Essex). The Stanwell cursus is a 4km structure (second only in size to the Dorset cursus) which cuts across parts of the River Colne tributary system. It comprises two parallel ditches c.20m apart, seems to terminate at its northerly end and is orientated NNW–SSE. During the Terminal 5 excavations at Perry Oaks, another smaller cursus was revealed which runs NNE–SSW and which terminates at its southern end at the main cursus (Lewis *et al.* 2006, 29). This second structure is only 60m wide and has an estimated length of at least 480m. Dates for both features suggest construction took place between 3600 and 3300 BC and that they were contemporary (Lewis *et al.* 2006, 29).

The question most pertinent here is concerned with the direction of ‘flow’ along these apparent pathways. The description by the authors of the excavation report placed the direction as NNW–SSE and NNE–SSW – indicating away from the rivers (in the case of the main cursus), and away from the main cursus and the rivers (in the case of the smaller structure). If the directions were reversed, the pathway of the smaller cursus would be approaching the main one and facing directly the Colne. The main cursus would, in turn, be the way to approach the Colne system and cross it not once, but twice. Were the Neolithic people who used these monuments walking to the water (as the main focus of attention) or away from it?

These two types of monuments country-wide seem to have a clear relationship with rivers (Oswald *et al.* 2001, 135). The Dorset cursus has its visible contact with water during the Neolithic period in three locations along its 10km length (Tilley 1994, 173ff; Brophy 2000, 64). A simple realignment of the monument would have meant it could have avoided these and so begs the question ‘why?’ Could sound be one key to answering that conundrum? Any movement of water produces sound. Walking through water for example cannot be done quietly with ease – it is possible but difficult. The resonance that is heard can be seen at a number of levels (Haughey 2007).

In the Mesolithic, the river is the focus for all parts of life – subsistence, settlement, work camps, hunting camps and perhaps ritual activity too. As the water levels rose, people moved to sites that were still on the rivers but in slightly drier areas, as on the Colne. With continued changing hydrology in the Neolithic, attention moved to sites adjacent to the river. The people merely moved their focus from the waterways themselves to the land which was enclosed by them. The causewayed enclosures with their separated ditches took on the attributes of the river, with the exception that they were dry at least most of the time. The ditches themselves became the river – these can be seen connecting to the water at places like Abingdon, Staines and Dorney. They become the recipient of offerings, just as the river may have been. The causeways themselves become the ‘ford’ to cross into the centre of the enclosure. The enclosures are seen, therefore, as a metaphor for the river at a time when water levels and possible flooding would have been unpredictable.

Taking this analogy a little further, cursus monuments, which frequently traverse the river or at the very least point towards it, can also be seen as ‘dry’ rivers (Brophy 2000). Those in the Thames Basin lay either parallel to the main channel or perpendicular. Cursus and causewayed enclosures usually do not appear on the same site which may mean that the ‘task’ they did was complementary and so did not need replicating.

One other feature connecting mobility between the watercourses and the Later Neolithic monuments are the avenues. Durrington Walls has an avenue (some 20m wide and 100m long), which connects the henge to the river (Parker Pearson *et al.* 2006). The avenue at Stonehenge is more recent, dating to the Bronze Age, and sweeps round in a curve towards the River Avon. Shepperton henge, which lies within the area of the Heathrow complex, has an avenue of pits or posts that go past the henge and run down to the River Ash (Burnham 2005). Avebury has two avenues – one cutting across a tributary of the River Kennet and one parallel.

All these avenues are Late Neolithic or older. They are built at a time when people stepped back a little from the river – for reasons probably of rising water or the constraints

of early agriculture – but the need to keep contact with the water was still there. Avenues were constructed to help provide that link, connecting with both the henges and the rivers. Traditionally, the avenue at Stonehenge has been seen as being used to connect the river to the henge and when travelling along the avenue, much thought would be given to the approaching view of the monument. What if, conversely, the avenue was meant to connect the henge to the river, rather than the river to the henge? This would mean that the correct way to travel along the avenue would be from the monument down to the river. The same argument applies to the other henges. It is not just a question of semantics but one of discovering what the main focus was – the henge (and earlier monuments) or the river? In the latter case, the walk towards the river would be the more important, rather than that to the henge. The avenues could therefore be seen as a means of seeking to (re)establish the connection between the river and significant landscapes.

We might see these areas as exclusive, with limited access only for a particular tranche of Neolithic society, but I would argue that on the contrary, these significant landscapes are seeking to be inclusive. There is a clear attempt to keep the river in a central if increasingly liminal place. The presence of water does not inhibit people going into these areas and each of them has land access.

Mapping the river

Rock art is one medium that can illustrate the importance of water and its sound (Haughey 2007). In the Neolithic, with the potential change in attitude towards rivers and water resources, the introduction of rock art particularly into tombs is quite significant. What is interpreted as the pictorial representation of the moving water in the form of wavy, zigzag or serpentiform lines as well as the ‘ripples’ of the concentric rings brings the water into the heart of the tombs. These carvings are found in profusion at many sites; not all in water-related regions, but the contention is that they do have a base in the movement and shape of water. Concentric circles can be seen as symbolising the ripples when an object is dropped into water. Rivers and wetlands are often perceived as places of ritual deposition. Dropping, throwing or even placing votive offerings in such a context would result in ripples being visible. A zigzag, single or multiples, could be a euphemism for a river or for ripples on the water (Haughey 2007).

Just as the light of the winter solstice has been noted shining into the central chamber at Newgrange on the Boyne (Stout 2002, 44, 47), so it is possible that the sound of the nearby river could penetrate into the heart of the monument as demonstrated by the physical notation on the stones.

In the Iberian Peninsula, the wavy line motif has been recorded at a total of 60 locations out of a possible 156 (Shee Twohig 1981, 24–6). While a number are found near the west and north coasts of Portugal and Spain, the majority would appear to be near to rivers of varying sizes (Shee Twohig 1981, 14–5, 26). Significantly, three-quarters of the megalithic rock art in the peninsula has been found in passage graves with the remaining 25% being recorded on menhirs, standing stones and other sorts of tombs (Shee Twohig 1981, 13). This ratio of distribution can be seen in Brittany, north-west France, with 126 out of 169 sites being located in passage tombs (Shee Twohig 1981, 56–7). Here wavy lines can be found at 28 locations, the majority of which are currently to be found at coastal or island locations with a small number in a riverine situation, such as Colpo on the Oust (Shee Twohig 1981).

In North Yorkshire, for example, decorated rocks can be found in association with the sources of the Wharfe and Aire Rivers (Beckensall 1999, 69). Further downstream, clusters of sites can be found less than 0.5km away from the Wharfe but situated 100m above, overlooking the watercourse. In addition, a handful of examples lie adjacent to the tributaries of the Aire (Beckensall 1999, 71). In Scotland, in a further example on Tayside, locations have proliferated along the steep sides of the valley as well as by the river itself, with 45 sites within a 30km stretch (Beckensall 1999, 112–3).

Rock art on the Boyne at Knowth where they combine a number of ciphers, suggests could almost be seen as ‘plans’ of the Boyne site with the river and the three main tombs plus the satellite graves (Eogan 1986, plate 61). One reason for the deliberate orientation of the tombs might be connected with the movement of the sound of the river itself, echoing inside the monuments (Haughey 2007). The range of circles and arcs can be seen on a number of stones (after Eogan 1986, 158–9, 161–3). While the more complex rock carving can be seen easily on kerbstones surrounding the tombs (Eogan 1986, plate III) the most ornate ones, particularly one at Newgrange (O’Kelly 1982, 181) tend to be found deep inside the tombs.

Tales from the riverbank

Myths or folktales are more than just stories passed on from one generation to another. At a simplistic level, the storyteller who relates the myths uses them to explain the origin of the tribe or group and to describe the reasons behind any prescribed behaviour. They also are used to enhance the position of the storyteller or shaman within the society. Animals and reptiles with which the people are familiar often appear in the myths as gods and with human attributes of speech and emotions. Creation stories of humans, topographical features and equipment, feature in many societies in one form or another.

Alexander Teit wrote about a journey he had made in 1900 across the north and west parts of the Fraser in north-west Canada and collected many myths of the Shuswap tribe. Of the ones he recounts only one, the story of the Salmon-boy, deals with the river. In it the boy falls into the Fraser and goes downstream to where the salmon live. After a while he is turned into a salmon himself to make the dangerous journey back upstream to his grandfather (Teit 1909, 690). The rivers, and salmon, in particular, are mentioned in the retelling of the conception of the world in which Coyote is sent by the Old-One into the world. “Probably his greatest work was the introducing of salmon into the rivers, and the making of fishing places. All the best fishing places on the large rivers were made by him” (Teit 1909, 595).

In Aboriginal North America, fish are seen in many places on the western coast and in a large region encompassing the area between the Great Lakes and Hudson Bay, as ‘supernatural masters’. In other places, primarily those occupied by the Inuit, the seal takes that title. “The concept of master of the fish was stimulated by fishing ... It would have been more prominent ... had not vision quest and belief in personal guardian spirits as well as agricultural ceremonialism displaced it in large areas” (Hultkrantz 1984, 882).

On the Murray-Darling in Australia, one of the few that does is also one of the earliest Dreamtime stories and concerns the Murray telling of its creation. Ngurunderi, in a bark canoe, pursued a giant Murray cod which formed the river as it swam along by sweeping its tail from side to side. The cod was called *That-tyu-kul* and he left the Murray and made

another track through the Mallee and down past the Grampians into Victoria (Berndt & Berndt 1964, 203–4; Allen 1972, 107). Rock art, particularly in Arnhem Land, shows a much more intimate relationship between fish, humans and mythical figures of the Dreamtime. Fish are said to have been involved with creation, birth and rebirth and the eating of certain parts of barramundi, for example, had to follow particular rituals for anyone other than old men (Taçon 1989, 242).

The rivers referred to by the Amazonian Indians are not specific rivers but their view puts the value of waterways in general at the centre of the whole cosmos. The Tukano in the Amazon see life as being controlled by a ‘Master of animals’ through whom life is lived on various levels or dimensions, one of which is the ‘fish-dimension’ (or ‘water-dimension’) which includes all rivers, streams creeks, lakes and swamps with all species of fish and aquatic creatures (Reichel-Dolmatoff 1996, 44). This ‘Master of fish’ and also ‘fish women’ who appear in the myths of the Shipibo are malevolent and must be killed before being cut into pieces (Roe 1982, 143).

In the picture of the celestial world, rivers appear both underground (as the river of death with no fish and not good to drink) and as celestial (rivers of life, rebirth, eternal youth, teeming with fish) (Roe 1982, 135–6). Both these aspects of rivers are reflected in their comparison (as both a river of death and rejuvenation) with the Milky Way where death is both the origin and destination of life in the cycle of rebirth (Roe 1982, 262). The anaconda, seen frequently in the waters of the Amazon, is another symbol of the Milky Way and it is also seen as having a dualistic role between men and women. On the one hand it is an erect phallus and on the other, when after ejaculation, the penis becomes flaccid, is ‘injured’ and softness (a sign of women) is triumphant, the anaconda is seen as ‘loathsome’ or rejected by the river (Roe 1982, 170–2). Anacondas are central to the Pirá-paraná myths where they are seen in various guises (Water Anaconda People or Makuna and Fish Anaconda People or Bará) along the journeys that all the people have to undergo (Hugh-Jones 1979, 33ff). The creation of what Hugh-Jones calls descent groups or movement of anacondas and ancestors takes place within a water/river context.

Routeways to other worlds

Human birth begins with the advent of water in the form of amniotic fluid and amongst many communities, water features in the final stages following death. The passage to and from other worlds can be symbolised by the passage of the river. These have been recovered in a variety of circumstances from both Mesolithic and Neolithic periods. Cemeteries (that is, several burials together) alongside the river in the form of basic interments or burial within monuments such as barrows or tombs occur in a wide range of locations including

Table 6.1: Water Anaconda people (Hugh-Jones 1979, 127)

<i>Process</i>	<i>Starting point</i>	<i>Boundary</i>	<i>Path</i>	<i>Boundary</i>	<i>End</i>	<i>Movement</i>
Creation of descent groups (movement of anacondas/ancestors)	House beyond water door	Water door	Milk river	Port (river to land)	Original house sites	East–west [NB direction of flow of Amazon river]

the Ouse and the Boyne, the Zgłowiączka (Poland), the Rhine-Meuse delta, the Ohře (Bohemia), between the Elbe and the Saarle (Germany) and in the Iron Gates gorge. Often there is a correlation between the watercourse and the positioning of the body. Those on the Ohře are aligned with the river, as are a significant number on the Danube, where others have been placed to face the water.

There are many burials in settlement sites of the Iron Gates. One male burial at Lepenski Vir, two at Padina and one Vlasac were interred in a sitting position and facing the Danube (Borić 1999, 61). Perhaps some of the most interesting burials are those at Vlasac where extended bodies were placed variously with heads towards the river, feet towards the river and heads pointing downstream parallel to the Danube (Radovanović 1996, 187–219; Borić 1999, 61). This has led to discussion of the ideological nature of the river and the Iron Gates. Radovanović sees the positioning of those lying parallel to the Danube as “symbolizing the notion of souls going down the river” (Borić 1999, 61).

The way that the Australian Aborigines have dealt with their dead is one area where the river may have influenced the siting of ceremonial activity. Colin Pardoe has examined the evidence available on the river Murray. Sites with burials and cremations collectively dated from 13,000 years ago to modern day lie with one exception within the Murray corridor and they first appear in the late Pleistocene (Hope 1993, 195). There are other burials on the Willandra lakes but Pardoe does not consider these to be cemeteries within the definition he has set (Pardoe 1998, 193). All of the cemeteries have between 40 and 200 burials. Pardoe suggests that the cemeteries are ‘tied’ to the river in its role as a lifeline for food and water in times of drought (Pardoe 1998, 197). The suggestion has been made that the repeatedly used burial grounds along the Murray may indicate stability in land ownership (Lourandos 1997, 235; Pardoe 1998, 208–10).

Among the Tukano in the Amazon Basin, canoe burials or pit burials were the norm, and were sometimes sited within the maloca itself. In the Black Mountains in South Wales, the positioning of long cairns following the various water courses either facing them or lying parallel to them as they descend down the into the valleys below (Tilley 1994, 122).

DISCUSSION

Rivers physically have a source (a beginning) and a point at which they disgorge into either a larger river or lake, or into a marine context (an end). This, today, is very obvious from maps and the knowledge gathered by those who created them. In the past, especially where a river system is large, this may have not been so clear. The sheer size and spread of a river and its tributaries might preclude people knowing a great deal about a system on a personal level, although information/hearsay from others might have been passed on. Knowing the river from the ground level, rather than from above would also influence the view held by the Mesolithic and Neolithic people living on its banks. For those living by the river, this would have meant that the water flow at the point of entry would have been their ‘beginning’ and where it left their ‘end’. This attitude towards waterways may have been carried through into folk tales with the anthropomorphism of certain rivers for example, the Mississippi (Ol’ Man River) and the Thames (Father Thames).

This concept of a life-giving river places it at the centre, rather than in the margins. The river can be seen as liminal, without being marginal, where everyday life runs in tandem with an experiential existence.

This desire in the past to travel along a river, using it as an economic channel or an experiential passage way, has marked out the many watercourses which proliferate in our landscapes. Their importance has often been side-lined in favour of terrestrial walkways. Now is the time to look at them anew and realise the vital role rivers play in our settling of the land in the Neolithic period.

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Coastal connections: Coastal mobility in the Neolithic

Alice Rogers

As with any period, Britain during the Neolithic was not populated with isolated communities (Darvill 1987). Instead there would have been much interaction and exchange taking place, both between individuals and also between wider society. Therefore, these communities cannot have been static; they would have been engaged in movement of varying scales (Leary 2014). This can range from movement within single dwellings, to within settlements, between them and further afield. This paper explores long distance mobility facilitated by Britain's coastline. People can engage in many different types of movement depending upon the terrain or distance they are travelling. These different forms can include walking, climbing, riding or sledging, for example, or using waterways as passages for movement, both by foot or by boat (Haughey 2012; this volume). These are all examples of inland movement, however, in recent years there has been much focus upon maritime mobility within archaeological research.

Maritime mobility entails movement which is facilitated by the sea. Where the sea is not perceived as a barrier, but enables interaction between communities separated (or perhaps we should now be saying linked) by a body of water. That seas may have provided routes for movement in the past has been recognised archaeologically since the beginning of the twentieth century, for example in O. G. S. Crawford's 1912 paper 'The distribution of Early Bronze Age settlements'. The interest in the seas encouraging mobility between distant communities has proliferated in contemporary archaeological research, with studies concerned with European prehistory analysing several different seascapes, such as the Mediterranean Sea, the western Atlantic and Irish Sea, the English Channel and the North Sea. For the British Neolithic period in particular studies have tended to focus upon the regions around the Irish Sea and on either side of the Channel.

Several studies have examined the results of movement between the communities of the western shores of Britain (south-west Scotland, Wales, Cornwall *etc.*) with those of eastern Ireland (Waddell 1991–2; Cummings & Fowler 2004; Cummings 2009). The movement between these shores has resulted in remarkably similar material culture in the lands either side of the Irish Sea, for example Neolithic pottery vessels, stone and flint axes, and monumental architecture (Cummings 2009). Quite rightly, Cummings does not want to suggest that these similarities resulted in a "bounded entity ... [or] shared Irish Sea cultural identity" (*ibid.* 1), but they were intentional. The resemblance of material culture on both sides of the Irish Sea, and also the movement of raw materials such as stone,

suggests that mobility across the sea was taking place during the Neolithic period, resulting in interaction and exchange between the communities living there.

Cummings (2009) suggests that the very nature of the Irish Sea enabled the movement of the communities living alongside its coast. The Irish Sea is unique in that its entire area can be seen from certain places, such as Snowdon (*ibid.* 189). Though perhaps an obvious point to make, the ability to see land on the other side of the water would mean that people would know it was there and thus can travel to it. The importance of visibility in maritime movement is a theme which will be explored later when considering coastal mobility.

Another study which looks specifically at the role of the sea in the introduction of the Neolithic to Britain is Fraser Sturt's and Duncan Garrow's project *Stepping Stones of the Neolithic*, in which they examine the Mesolithic-Neolithic transition and the role that movement across the sea had to play in it. They focus specifically upon the evidence from the smaller islands, such as the Channel Islands, and use them to make suggestions about the process of the Neolithic arrival (Garrow & Sturt forthcoming). An important part of this research is the exciting work they conducted modelling sea level changes (Sturt *et al.* 2013), arguing that we have to have an understanding of sea conditions if we are to fully appreciate maritime mobility. Both these previous studies looked at mobility *across* the sea. In my research I am examining the possibility of mobility *along* the sea following the coastline. The idea of coastal mobility has largely been neglected in past archaeological studies, where work has tended to focus upon the movement and interaction taking place across the seas. For example, though the maritime mobility of the North Sea has been discussed by a number of researchers (for example Butler 1963 and Van de Noort 2011), this has been in terms of movement across the water, so from Britain to the Continent. Travel to other lands across the seas would have been highly important in the past for interaction and exchange, as has been demonstrated by previous research. However, this paper argues that coastal movement would also have been highly significant. I examine the idea of coastal mobility within the context of the British North Sea coastline during the Neolithic period.

COASTAL MOBILITY

Though sharing many of the same fundamental features, coastal mobility differs considerably from open sea voyages. The potential of coastal travel was brought to the attention of archaeologists through the work of Braudel (1972), in his book *The Mediterranean in the Age of Philip II*. Though during the sixteenth century the technology of boat building was well developed, Braudel demonstrated that the shipping routes chosen around the Mediterranean hugged the coastline rather than risking the open seas. Braudel termed this form of maritime mobility '*costeggiare*' (1972, 103). By examining the location of shipwreck sites, Braudel determined that sea journeys were undertaken in a series of shorter journeys, or "hops" along the coastline, which he described as 'tramping' (*ibid.* 104). In this way, coastal travel is comparable more to river journeys rather than those across the open sea (*ibid.*).

Travelling alongside the coastline has several benefits. These can be grouped into two different categories; navigation and pilotage and social benefits. The key feature of coastal travel is that land is always kept in sight, unlike travelling across the open sea.

As such, the land can be used to aid in navigation and also for locating suitable areas to land the vessel. If a boat stays within sight of land then it is much harder for it to drift off-course, in contrast to voyages across the sea when the sight of land can be lost for periods of time. Not only does the sight of land provide you with the knowledge that you are moving in the right direction, it also can provide more detailed knowledge for the navigator. The different features along the coastline can be used as markers for visual pilotage, ‘the maritime perspective – viewing the land from the sea – is important to understand how movement across the water was guided by features on land’ (Wilkes 2007, 128). This is when prominent features along the coastline are used to communicate information about that stretch of water, be it a safe landing place, dangerous rocks or access inland. The British North Sea coastline has many features which could be used in this manner, such as the high cliffs at Boulby, between Skinningrove and Saithes, Yorkshire, which reach over 200m in height (Steers 1964). The visual pilotage technique of navigation is the one which many authors favour when discussing prehistoric sea navigation (McGrail 1993; Horden & Purcell 2000).

The visual nature of coastal mobility not only aids in navigation but could also have been integral for its adoption as a route in the first place. As mentioned above in the



Fig. 7.1: View from Elie across the Firth of Forth towards North Berwick. (Photo author's own).

discussion of Irish Sea, the ability to see a destination across the water can impact upon the likelihood of movement there (see above; Cummings 2009). Though not as immediately obvious as seeing land across the sea, the nature of the coastline means that you can often see for great distances along the coastline. For example, you can see for over 24km from St. Catherine's Dub to Aberdeen in north-eastern Scotland. The outlook along a coastline presents the viewer with a route free of obstacles, in contrast to journeys over land. This nature of the coastline could potentially lead to it being used as a route for movement. In addition, the physical nature of the coastline can also reveal potential shortcuts for journeys. In many instances you can see land on the other side of the large river estuaries, which may lead to brief journeys across open water, significantly reducing the distance between different communities and thus also the time it takes to move between them. The British North Sea coast features several large estuaries which could have been used in this manner, such as the Thames, the Wash, and the Firth of Forth. A good example is the view across the Firth of Forth, where you can see the opposite shore over the water (Fig. 7.1). If you make a boat journey across the estuary from Elie, Fife, to North Berwick, East Lothian, then it is only 13km in distance. However, if you go by land you would have to travel much further to find a river crossing and the journey can be up to 140km in length. These river estuaries would also deliver the additional key advantage of providing access inland from the coast. This contributes to the social benefits of coastal mobility, which will be discussed in more detail below.

NEOLITHIC BOATS

Maritime and coastal mobility implies access to seaworthy vessels (although the coastal route could be exploited by land also). Indeed, we know that people have been able to cross seas from around 40,000 BC, as evidenced by the colonisation of Australia (McGrail 2001). However, there is very little evidence of Neolithic examples of boats from the archaeological record as a whole. For the Neolithic period there are two types of boats which contribute to the debate as to the form of sea-going vessels; log boats and hide boats. Log boats are the oldest form of boats to have been recovered from the archaeological record, with the earliest dated examples from the Mesolithic period (McGrail 2001). For Britain, the earliest log boats date from the Neolithic period, with early examples from Ireland (Van de Noort 2011; Dunkley 2014). Log boats (or representations of log boats) are also known from the Early Bronze age as burial containers (see Elgee & Elgee 1949 and Lawson 1986 for examples), implying a link between boats and ritual which is explored in more detail below.

Log boats, as their name suggests, were constructed from a single log of wood which was hollowed out into the desired form. There is much debate as to whether log boats would have been suitable for use on the open seas (McGrail 2001; Van de Noort 2011). Some researchers suggest that, due to the constraints imposed by their manufacture, log boats would not have a high enough freeboard or deep enough hull for use on the seas (McGrail 2001). There are adaptations that you can make to the basic design, such as the addition of side-strakes or side extension stabilisers (*ibid.*), but no examples with these

additions have been recovered from Britain (McGrail 2004). Instead some researchers (McGrail 2004; Van de Noort 2011) have favoured the interpretation that hide boats were the craft of choice for sea travel, a view suggested by Case in his well-known work, 'Neolithic Explanations' (1969). Hide boats were constructed by crafting a frame of wood and then covering it with stretched animal hides, which would then have been waterproofed using animal fat (Van de Noort 2011). No definitive hide boat vessels have been recovered in the archaeological record, probably due to their insubstantial nature, and so their use in prehistory is mainly conjecture. Though we have no direct evidence of this boat form from prehistory, their use as sea-going vessels in later periods is well documented (Hornell 1938; Petersen 1986; McGrail 2001). However, Peacock *et al.* (2010) warns against favouring the hide boat over log boats for sea journeys during the Neolithic. They suggest that the construction of large hide boats would have been much harder than generally allowed by researchers and that instead it is perhaps best to see hide boats as smaller craft used on inland waters. Furthermore, experiments using log boats on the sea in the Mediterranean region were successful, with journeys up to 800km in length completed (Tichý nd).

EVIDENCE OF MARITIME MOBILITY

Therefore, we have the problem of approaching maritime (and coastal) mobility in the British Neolithic with no direct evidence of the boats being used. This could be seen to create a problem for studies examining Neolithic maritime mobility. Instead, what researchers have to do is to look at the question differently. Rather than using the existence of Neolithic sea-worthy boats as evidence of maritime mobility, we have to use evidence of maritime mobility to indicate the existence of the vessels. Instead of looking for the technology of maritime mobility, such as the vessels used, we instead need to focus upon the outcomes of mobility. We need to consider why people would want to move in the first place. Movement is fundamental to life. Without it we would not be able to obtain vital resources, such as food, water, building materials, and clothing for warmth. Nor would we be able to interact with others. Scales of movement range from the small to the large and it is these large scale movements which we consider in maritime mobility.

Long distance movement provides many benefits to the participants, but fundamentally it results in interaction and exchange. Exchange, however, is not a simple concept. Instead it has many facets. I would argue that exchange is manifest in the archaeological record in three ways, 'traditional exchange', the 'exchange of ideas' and the 'exchange of beliefs'. By detecting traces of exchange we are able to provide a proxy for movement. Traditional exchange is represented by the movement of portable objects or raw materials. Examples include different types of stone, flint, and jet for raw materials, and ceramic vessels or items of personal adornment for objects. The movement of beliefs are represented by shared monument forms or burial practices, such as barrows, henges, causewayed enclosures etc. Finally, the movement of ideas can be seen in the archaeological record by the exchange of technology, know-how and styles. Therefore, objects do not necessarily have to move, but ideas exchanged between people. This can be seen through similar styles of decoration or the spread of a technology, such as flint working or pottery

making. Therefore, similarities in the archaeological record between different places can be used as a proxy for movement.

We are able to detect similarity in the archaeological record because all material culture has the ability to communicate. All features of the created human world have communicative properties, from individual objects, structures, practices (such as burials), to the transformation or appropriation of natural places. The communicative nature of objects has been discussed in detail, where researchers have looked at ideas such as structuralism and semiotics (see Tilley 1991; Miller 1994; Hodder & Hutson 2003; Layton 2006). However, little work has focused explicitly on the presence of this property in monumental structures or burial practices, which has instead tended to focus on power and control or the construction of identity. It is the visual nature of all aspects of the archaeological record which allow them to communicate. When humans create something we do it in the knowledge that it will impact upon others, that is, its creation was designed to express something, in much the same way as writing or speech. But communication is not just auditory, it has just as much to do with the other senses of sight, touch, taste and even smell (Finnegan 2002). It is a combination of these senses which allow non-verbal objects, such as monuments, to be understood by society, not just the creator. If we work from the basis that the archaeological record has the ability to communicate, then we may be able to detect manifestations of interaction and the exchange of ideas. This interaction, and therefore mobility of people, will be present in the archaeological record in the form of similarities within the created world, for example monument design, and shared practices such as burial traditions.

However, this approach to detecting mobility and interaction in the archaeological record does have some problems. Perhaps the greatest of these is that similarity in the record between different places is not the only evidence of interaction. Instead, it has been argued that contrasts between different communities material culture can also indicate contact (Hodder 1982). In his study of the Baringo, Hodder demonstrates that the differences between the communities were not as a result from lack of group contact, but instead served to differentiate between close groups. Therefore, we cannot take differences in the archaeological record at face value. Kristiansen and Larsson (2005) suggest that one way to avoid this generalisation is to look at *how* material culture is used between communities, rather than its superficial appearance. They suggest that even if objects look different between two communities, they can still symbolise contacts if they are used in similar ways (*ibid.*). For example, although a metal dagger may look different between two communities, if it is used in the same way, *i.e.* to represent a warrior class (see Kristiansen 1987; 1998; Treherne 1995, for examples from the European Bronze Age), then it can indicate contacts between the groups. This recommends that when looking for evidence of mobility and contact between groups we should be looking for shared customs, such as burial traditions or ritual practices rather than just the same pottery styles, *etc.*

So far the approach to recognising mobility in the archaeological record can apply to all forms of mobility, including over land. In order to examine maritime mobility we have to focus on those communities with access to the sea. These can be those located next to the coastline itself, but can also include those further inland with good routes to the sea, as Braudel (1972) states, sea travel 'has repercussions reaching far into the land masses' (*ibid.* 162). In both Cunliffe's (2001, 565) study of the Atlantic coastal regions and also my

work looking at the British North Sea coast, this region is taken to be up to 50 kilometres from the coastline. For my work this distance was based on the ability for a community to access the coast on a semi-regular basis, based on average walking speeds of five kilometres an hour. However, it is not just distance that influences access to the sea; several researchers have highlighted the importance that rivers would have had in providing routes in prehistory (Sherratt 1996; Davison *et al.* 2006). The approach taken in order to examine coastal mobility in my research was to divide the study area into a series of zones, and examine evidence of interaction within the different zones. This divided the land bordering the sea into three different zones; a 'core zone' (of land within 20 kilometres of the coastline), a 'peripheral zone' (of land between 20 and 50 kilometres), and also a 'river zone' (and within 10 kilometres of major rivers). By examining the evidence for interaction in each of these zones I hope to be able to determine the nature and extent of influence of coastal mobility along the British North Sea coast.

COASTAL MOBILITY ALONG THE BRITISH NORTH SEA

The preliminary results outlined in this paper come from research examining coastal mobility along the British North Sea coast during the Neolithic. The study area included in this work extends from Fraserburgh in the north, down to Dungeness in the south. These two locations were chosen as the limits for the study area as they mark where the coastline changes its axis from north-south to east-west. As one would expect with such a large study area, the nature of the coastline varies along its length. There are a diverse range of features present on this stretch of coast, from hard and soft rock cliffs of varying heights, sand features such as spits, dunes and beaches, and gravel and shingle features (May & Hansom 2003). The coastline is also dominated by several large river estuaries, the Thames, the Humber, the Forth and the Tay. It is difficult to describe such a large stretch of coast qualitatively; however, there is a mathematical method which allows us to quantify the nature of a coastline, which makes for easy comparison between different sections. This method involves examining the fractal dimensions of different stretches of the coast and is based upon the work of Richardson (1961) and Mandelbrot (1967). Fractals work upon the principle that any line varies in length depending on the unit used to measure it (Richardson 1961). By measuring a line with different units we can model the results on a graph and compare the slope of the line created. The angle of this slope can then be used to provide a dimension measurement for the line, with lines which are less complicated being closer to 1. By considering the coastline as a line we can use this method to describe and compare different sections.

The coastline in this research is divided into nine different zones based upon river catchments. The fractal dimensions of the British North Sea coastline range in value from 1.02 to 1.13, with a percentage increase in length between the different measurement units ranging from 11 to 35%. These results do not show a huge range between the measurements, with the simpler coasts, such as north eastern Scotland (1.02) closest to 1, and the more complicated sections being those including the large river estuaries (such as the Firth of Forth: 1.13). However, they do contrast greatly with a section along the western coast of

Scotland which gave a result of 1.43, with an increase in length of 125%. These results show that the coastline of the British North Sea is not particularly complex, thus perhaps representing easier navigation and landing sites. The preliminary results obtained from this research thus far show similarities in raw materials, finished objects, technology and monuments along the length of the British North Sea coastline during the Neolithic. This covers the spectrum of Neolithic life, from the material culture, through to ideas, practices and new technology.

The evidence from stone axes has frequently been employed to demonstrate contacts between different communities (Bradley & Edmonds 1993). Several different axe types provide evidence of the British North Sea coastline being used as a route for movement during the Neolithic. A good example concerns the Group XXIV axes, whose source is found close to Loch Tay in Perthshire (Edmonds *et al.* 1992). The distribution of these axes extends from north east Scotland all the way down the coast to Lincolnshire and beyond (*ibid.* 82, illus 3). The fact that the British North Sea coast is so important in the distribution of these axes is perhaps evidenced in the fact that there is only one axe of this stone type on the west coast of Scotland. That the British North sea coast was used in the distribution of this axe type is perhaps unsurprising when we consider the axe factory's location: Loch Tay drains into the North Sea, meaning that there would have been easy access to the coast. However, further evidence shows that an axe factory does not need to be located close to the British North Sea coastline for it to be used as a route of movement of the artefacts. The Group VI axes were produced of stone from a source in Cumbria (Bradley & Edmonds 1993) and were widely distributed across both Britain and Ireland. Several researchers have argued that the high number of these axes found in Yorkshire suggests that the communities there were involved in redistributing the axes (Manby 1979; Bradley & Edmonds 1993). This redistribution could possibly have taken a coastal route along the British North Sea, as demonstrated by the examples of axes in north-eastern Scotland, Northumberland, Lincolnshire and East Anglia. Coastal mobility distributing these axes is especially clear in Scotland, where we have both an eastern and western distribution of these axes.

Another Neolithic artefact whose distribution seems to indicate coastal mobility is the jet belt slider, dating to the middle Neolithic. After the discovery of a new example at Movers Lane, Essex, Alison Sheridan reappraised their evidence and highlighted their strongly coastal and riverine distribution (Sheridan 2012). Of interest to us is that of the 29 examples that she lists, over half were recovered either within 50km of the British North Sea coast or near a river which drains into it (*ibid.* 195, fig. A2.5). In fact, it is even possible to argue that the examples in the Wessex area may have reached their place of deposition by way of the North Sea and the Thames. Furthermore, a vast majority of the belt sliders were made of Yorkshire jet, rather than other similar substances (*ibid.*), which lends further support to the notion that these items were distributed through movement along the British North Sea coast.

Several types of later Neolithic flint also exhibit strong eastern coastal bias. Though a number of flint artefact types, such as discoidal knives (Clark 1928–31; Gardiner 2008, including the production site on Beachy Head) and curved sickles (Clark 1932–4) exhibit these distributions, the best evidence for coastal mobility come from the exploitation

of raw materials and a specific type of specialised flint technology. The recent fieldwalking surveys at the sites of Overhowden and Airhouse, near the Overhowden henge (Ballin 2011) provides a case study for this point. Overhowden and Airhouse are located in the Scottish Borders, yet around 94% of the Late Neolithic flint artefacts recovered from the sites were crafted from Yorkshire flint (*ibid.*), the nearest source being around 200km to the south. Local flint would have been available in the form of beach pebbles; however, the distinctive colour of the flint from the assemblage suggests it was not sourced nearby (*ibid.*). The use of Yorkshire flint during the later Neolithic in the Scottish Borders is in stark contrast to the flint assemblages of the earlier Neolithic and Mesolithic in the same area which did rely on more local lithic resources (*ibid.*). The finding of Yorkshire flint in the Scottish Borders suggests that during the Late Neolithic period there was interaction and exchange between the communities living in those areas. The most direct route from the flint deposits of Yorkshire up to Scotland was along the British North Sea coast.

The Late Neolithic flint assemblage from Overhowden and Airhouse provides additional evidence for coastal mobility along the British North Sea coast. Around 9% of the assemblage displayed levallois-like attributes, and this proportion was probably much higher when we take into account the effects of fragmentation (Ballin 2011). The levallois-like technique is a particular way to prepare a flint core before flaking from it (Saville 1981). This technology has been recognised at a number of sites in Britain, which have a distinct eastern focus, with sites concentrating in north-eastern Scotland, Yorkshire and East Anglia in particular. Excavations or fieldwalking have revealed that this flint technology was practised at several extraction sites along the British North Sea coast. These sites are the Den of Boddan and Skeilmuir Hill, Aberdeenshire (Saville 2006), South Landing, Yorkshire (Durden 1995), and Grimes Graves, Norfolk (Saville 1981). Each of the sites was producing levallois-like cores or blanks for distribution elsewhere. In the case of South Landing, a potential recipient workshop was identified a little further inland at North Dale, where people were producing specialised flint artefacts from the cores and blanks, such as discoidal knives (Durden 1995). The evidence of the same specialised technology being used at each of these extraction sites suggests that mobility along the British North Sea coastal route resulted in the sharing of ideas and knowledge, alongside finished objects or raw materials.

Finally, similar to the way in which Irish Sea connections are characterised by megalithic monuments (Cummings 2009), it can be argued that the British North Sea coast is characterised by timber ritual structures. These come in three different forms, first the earlier Neolithic large timber structures, which average around 57m in length. The next group date from the later Neolithic and are much smaller in size averaging around 20m in length. Finally, we have the mortuary structures which are often part of a larger monument or ritual area. Though by no means a definitive list, the preliminary results of my research shows a remarkable concentration of these structures along the northern stretch of the British North Sea coastline (Fig. 7.2). Even more remarkable is that over 90% of these sites are located within 20km of the coastline. The only site which is not within the 'core' zone of this research, Inchtuthil, is located less than a kilometre from the River Tay, so it too has easy access to the coastline.

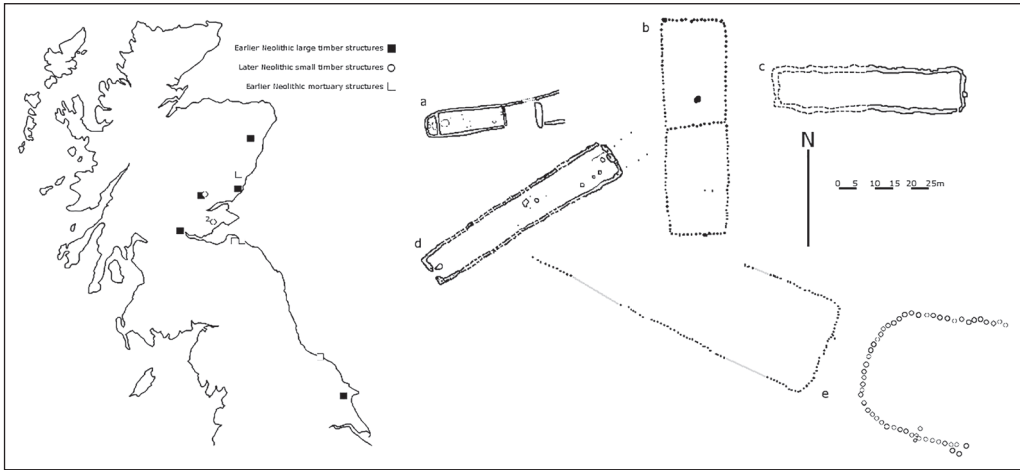


Fig. 7.2: Map of timber monument locations and Early Neolithic group. Timber enclosures: a) Forest Road, Aberdeenshire; b) Douglasmuir, Angus; c) Inchtuthil, Perth and Kinross; d) Kilham, Yorkshire; e) Cowie Road, Stirling.

Perhaps the best examples of similarities between these monuments occur within the earlier Neolithic examples. There is a striking similarity between the structure at Inchtuthil, Perth and Kinross, and the pre-barrow feature at Kilham, Yorkshire (Barclay & Maxwell 1991; fig. 2c, d). This is especially apparent in their form and size (*ibid.*), with Kilham measuring around $58 \times 10\text{m}$ (Manby 1976) and Inchtuthil $50 \times 10\text{m}$ (Barclay & Maxwell 1991). The other structures in this group (Fig. 7.2) also show similarities as in each case there appear to be a pairing of structures, either as two separate timber structures (Cowie Road, Stirling, and Forest Road, Aberdeenshire), or through internal divisions (Douglasmuir, Angus). The evidence presented here once again suggests that the British North Sea coastline was used as a route for mobility, expressed in the sharing of ideas and practices reflected in the timber structure forms.

WHY IS MARITIME MOVEMENT AND COASTAL MOBILITY IMPORTANT?

Movement and mobility are associated with many benefits. Mobility literally expands the world in which someone lives. Movement allows you to go to new places, experience new things and meet new people. When you return to your community it is with the experience of the other place. This can include bringing back exotic raw materials, new items or styles of material culture, new practices and new rituals, and even new people. All these benefits apply as much to mobility now as they did in the past. However, mobility and movement would have been conceived of differently in prehistory. This is due to concepts of distance. Today we know exactly where we are in the world and we know the distance to other places and how long it would take to get there. In many ways our world today is smaller now than

it was in the Neolithic. This is because people in the past did not have the same concepts of distance that we do. The rest of the world was a mystery.

The idea of distance is central to Mary Helm's work *Ulysses' Sail* (1988). In it she argues that, in pre-industrial societies, concepts of distance were linked to ideas concerning the supernatural and otherness. In this way space can be divided; that which is close is familiar and can be seen as home, or a safe place. That which is distant can be seen as 'the other', full of danger and the unknown. Therefore, making a long distance journey, such as by sea, would mean that the traveller would cross into this other zone and thus the travellers, and also the objects, ideas and knowledge that they bring back, could become associated with the supernatural. Sea travel has further associations with the supernatural. This is because the interface between the land and the sea can be perceived as a liminal boundary (Westerdahl 2005; 2010). Travelling by sea can therefore be seen as crossing a boundary. The sea, as a liminal place, can have all the associations just discussed for distance, it can be seen as the unknown and perhaps be associated with particular gods or the ancestors. Travelling by sea, and thus crossing this boundary, can have both positive and negative connotations, 'passage across this liminal area can endow magic power, but it is also full of danger' (Westerdahl 2010, 280).

The supernatural nature of sea travel can be discussed in the terms of Van Gennep's 'rites of passage' (1960). The rites of passage that he describes for ritual occasions consist of three elements; the 'rites of separation', 'liminality', and 'rites of reaggregation'. Undertaking a sea journey would correspond to the 'rites of separation', whereby the travellers leave their home and known social world. As I have just discussed, we can view the coastline as a liminal boundary, therefore the period at sea would relate to the phase of 'liminality'. Transformations and changes take place within the liminal zones (*ibid.*), which can explain much of the importance and prestige attached to maritime movement and the goods, knowledge and people also brought back. Finally, returning to your home community parallels the 'rites of reaggregation'. The ritual associations ascribed to maritime travel when we use Van Gennep's 'rites of passage' (1960) are even more important when we consider coastal travel. This is because coastal travel can be conceived of as travelling along a liminal boundary, rather than being fully in one world or another. In this way movement along the coast could be seen as more dangerous than other forms of mobility, as you are neither here nor there.

It has been argued that the very nature of sea travel is ritualised. Westerdahl (2005) has drawn attention to the fact that many of the islands opposite entrances to safe harbours, along the Scandinavian coastline, have magic or ritual associations. These associations may reflect the fact that the islands were important in pilotage along the coastline. The relationship between islands and ritual can be further seen in maritime and coastal mobility by their becoming locations of special significance. A good example of this occurs in the British Early Bronze Age along the British North Sea coastline. During prehistory the Thanet area of Kent was still an island, separated from the mainland by the Wansum channel. During the Early Bronze Age the island had a large concentration of monuments built upon it (Bennett *et al.* 2008), and a similar number were marking the other side of the river channel (De Reu 2012). It now appears this pattern also existed during the Neolithic, especially the distribution of causewayed enclosures (Fig. 7.3). These ritual monuments are arguably marking an important coastal passage from the channel to the Thames estuary.

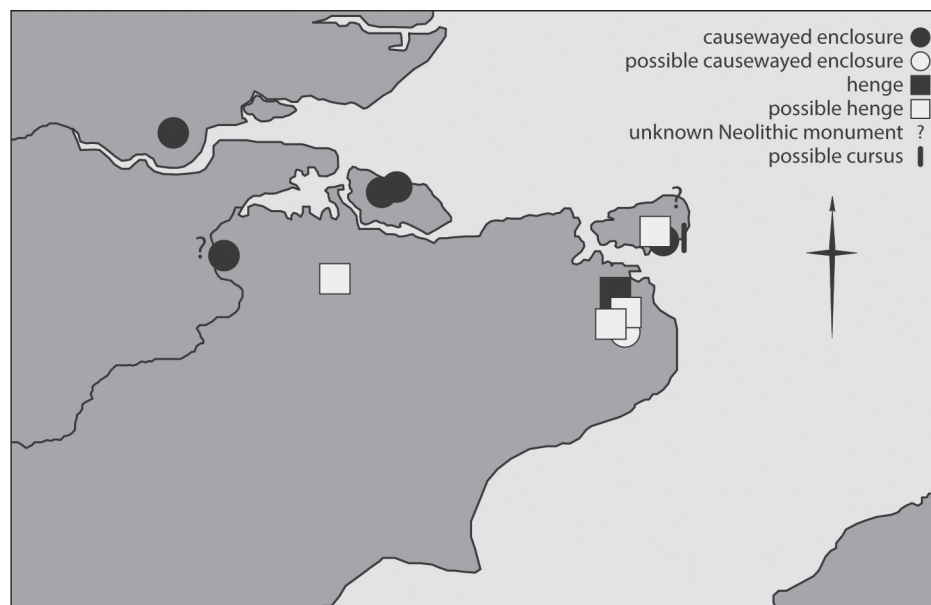


Fig. 7.3: Distribution map showing the relationship of Neolithic monuments with the sea around Kent.

Finally, the ritual nature of sea travel can also be reflected in the boat burials of prehistory, such as those of the Early Bronze Age., where there is a clear link between ritual and maritime mobility.

In addition to the ritual benefits of maritime mobility, coastal mobility in particular has some significant social benefits. This is due to the nature of coastal sea-faring. As mentioned above, travelling alongside the coast, rather than across the open sea, means that land is always kept in sight. The many benefits this provides have already been mentioned, but it also has a great impact upon social interaction. Travelling alongside the coast means that the boat can pull to shore wherever convenient or safe, in contrast to just heading towards one destination. This method increases the opportunities for social interaction and contact in any one journey. Braudel (1972) has highlighted the importance of coastal travel, he argues that travelling alongside the coast 'is how the princes and notables of this world would have travelled ... taking time for festivities, visits, receptions' (*ibid.* 104). As interaction between different communities is one of the main reasons for movement, we can see why coastal mobility would have been engaged in during the Neolithic.

CONCLUSIONS

The results of my preliminary research into the British North Sea coast have suggested that the coastal route was an important passage for movement during the Neolithic, especially between Yorkshire and Scotland. Objects and raw materials were transported along its length, but even more importantly ideas were also travelling. This is best reflected in the

levallois-like flint technology seen at several sites along the coast and also in the shared monument traditions. Kristiansen and Larsson (2005) suggest that it is the adoption of new practices and values which represents close interaction between communities. The evidence from the British North Sea coast suggests that there were strong links between at least some of the communities living alongside the sea. However, whenever we consider mobility within archaeology we must remember that just because a community was involved in one axis of mobility and interaction, it does not mean that it was the only one. Communities could have been engaged in many different exchange networks at any one time. For example, although the societies living alongside the British North Sea coast were engaged in mobility along its length, there could also have been movement inland and across the sea. One of the biggest difficulties archaeological studies of mobility face is the ability to untangle all these different networks.

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Should I stay or should I go? Movement and mobility in the Hebridean Neolithic

Angela Gannon

BEYOND THE HORIZON, ACROSS THE DIVIDE

The movement of people, objects and ideas is central to the British Neolithic, and its very introduction presupposes some form of sea crossing from the Continent, at the very least of domesticated plants and animals, but probably also of people (Whittle 1996; Thomas 1999 and 2013; Sheridan 2000). Put simply, the Neolithic would never have happened if people had stayed still. But any understanding of this movement has to be set in the context of a changing marine environment, nowhere more so than for the islands along the Atlantic seaboard of Scotland where, with rising sea-levels, the ability to undertake journeys across open water would have become part and parcel of daily life.

This paper draws upon fieldwork conducted by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) since the mid-1990s, and will deal primarily with three groups of islands: the Small Isles (Canna, Rum, Eigg and Muck); part of the Western Isles (from Lewis in the north to South Uist); and St Kilda (Fig. 8.1). At its core lies this question of movement and mobility across water.

SETTING THE SCENE: THE TIDE IS HIGH

Studies over the last few decades have explored when Britain became an island and when farming makes its first unequivocal appearance. Much ink has been spilt debating the nature of the transition from the Mesolithic to the Neolithic, with some authors favouring the introduction of domesticated crops and animals by settlers from the Continent, and others adoption by indigenous communities, accompanied by little or no population movement (see Sheridan 2000 for the former; see Thomas 1999 for the latter). The most recent assessment of the arrival of the Neolithic in Britain and Ireland, and the maritime connections of the western seaways around 5000–3500 BC suggests a more nuanced picture somewhere between these extremes (www.neolithicsteppingstones.org; Garrow & Sturt 2011; Sturt *et al.* 2013).

One thing is certain, however: long before there were Neolithic farmers on the outermost islands of Atlantic Scotland, there were Mesolithic sailors. Traces of them are found on both sides of The Minch, for example at the settlement excavated on Rum (Wickham-Jones 1990), and at Northton, Harris, where charred hazelnut shells are dated to the

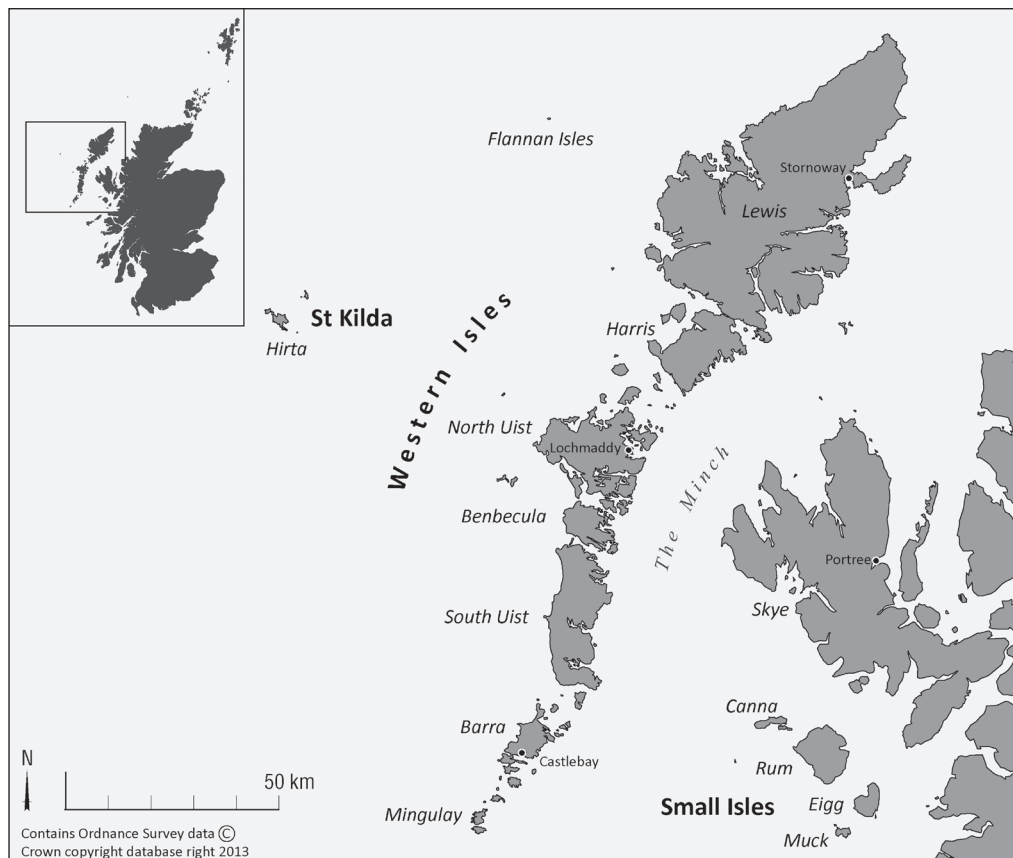


Fig. 8.1: Map showing the three island groups discussed in this paper, namely the Small Isles, the Western Isles and St Kilda. (GV005332 © RCAHMS).

mid-seventh millennium BC (Simpson *et al.* 2006). Equally, palaeoenvironmental evidence suggests people were clearing woodland on South Uist in the early seventh millennium BC (Edwards 1996). The movement of people around and across The Minch during the Mesolithic could only have been undertaken by boat, and the use of materials like Rum bloodstone for tools implies an intimate familiarity with these island environments. In some places, particularly along the shallow waters of the Atlantic fringes of the Western Isles, these sailors must have been aware of changes around them, as islands visibly shrank and the distances between them grew.

Next to nothing is known of these Mesolithic craft, and little more can be said for the Neolithic, albeit that the presence of tools for wood-working and skin-working argue the case for boat-building skills, whether by hollowing out a tree-trunk for a dug-out canoe or stretching and sewing skins over a wooden frame to make a coracle. Evidence from the Bronze Age includes plank-built boats, while Scandinavian rock art, such as the fishing scenes from Bohuslän, is believed to depict skin covered craft (Johnstone 2001, 29, fig. 4.1).

It has been postulated that a dug-out canoe from Greyabbey Bay, Strangford Lough, County Down in Northern Ireland, which dates to between 3499–3022 BC, may have been sufficiently stable to cope with choppy sea conditions and relatively long distances, (<http://www.nationaltrust.org.uk/strangford-lough/history/view-page/item710289/>), but such craft tend to sit low in the water and are not best suited to open seas and the cold and changeable conditions of the Atlantic (Johnstone 2001, 47). They are more appropriate in slow running water on rivers and in estuaries, though they may on occasion have been used for sea journeys hugging the shore (Johnstone 2001, 27; McGrail 1998, 53).

For sea crossings, boats need to ride the waves without shipping water, and at the same time be strong and pliant enough to cope with the stresses of heavy seas (Johnstone 2001, 29). Hide-covered vessels meet these requirements. They are easy to construct and light to carry, and though with a shallow draft they may be blown downwind, they are less affected by currents. The leather coffin containing a flexed inhumation found in one of the graves in the Early Bronze Age cemetery at Barns Farm, Dalgety, in Fife was interpreted as just such a craft (Watkins 1980, 277). It measured 2m by 0.95m, with one end rounded and the other squared, and though no trace of any supporting framework was found, it bears close comparison to the shape of modern Welsh coracles (Watkins 1980, 280; 1983, 74).

While the earlier ancestry of the coracle and larger sea-going craft remains unproven, boats capable of crossing open seas were present long before the beginning of the fourth millennium BC. Quite what inspired the Neolithic ‘get up and go’ from the Continent at this particular time remains unclear, and though socio-economic factors have been suggested (Sheridan 2007), an awareness of sea-level change through the submergence of coastal lowlands, and within living memory, may have been equally important (Van de Noort 2011, 134). A farmer’s skills, however, are not naturally those of a sailor, and beyond the practicalities of boat building, successful sea travel necessitates knowledge of tides and currents, safe routes and landfalls, and navigation (Van de Noort 2011, 235). And though likely departure and arrival points can be suggested from the archaeological record, the movement itself leaves no mark upon the water (Davidson *et al.* 2010, 434).

THE MONUMENTAL EVIDENCE: PASSAGES OF TIME

In keeping with much of mainland Scotland, the principal monumental evidence for the appearance of Neolithic communities in the Western Isles is the distribution of chambered tombs. Along the coastal fringes of Barra, South Uist and Benbecula, they are scattered relatively evenly, but on Lewis and Harris they occur only sporadically, mainly on the sandstone outcrops around Stornoway, Lewis, while on North Uist there is a concentration of at least eighteen, and possibly as many as twenty-four. Skye, on the opposite side of The Minch, also has chambered tombs scattered along its coast, but there are no convincing examples from the Small Isles lying to the south.

Our understanding of chambered tombs owes much to Audrey Henshall’s two magisterial volumes *The Chambered Tombs of Scotland* (Henshall 1963 and 1972). In the Western Isles, she identifies two recurrent types based on the form of their chambers, namely Hebridean passage graves and Clyde cairns, both of which are found further afield.

The Hebridean tombs are more often than not contained within round cairns, and have a narrow passage leading from the outer kerb or peristalith, sometimes emphasised by a shallow forecourt, into an oval-shaped chamber formed of huge uprights. The Clyde cairns, by contrast, are normally rectangular or trapezoidal and have rectangular chambers that are entered directly from the external façade; the chamber is sometimes elongated into a series of compartments subdivided by sill stones.

Barpa Langass on North Uist (NF86NW 6) is largely intact and displays all the features of Hebridean tombs, with dry stone walling carrying the walls of the chamber up to the corbels and lintels of its roof. The cairn was investigated by Erskine Beveridge, a textile manufacturer and antiquary from Dunfermline who created a remarkable photographic record of his archaeological explorations (Beveridge 1911; Ferguson 2009). He recovered pottery, charcoal and cremated bones from the chamber floor, but it appears that much of the deposits had already been removed (Beveridge 1911, 246–8).

Unival, another Hebridean tomb on North Uist, was excavated in the 1930s by Sir Lindsay Scott and is more unusual (NF86NW 4). This cairn is roughly square on plan and does not have a funnel-shaped forecourt (Scott 1950, 1–49). Although not visible today, the gaps between the stones of the peristalith were infilled with dry stone walling, and within the chamber there was a cist-like structure containing inhumations. The rich assemblage of Neolithic pottery included not only sherds of highly decorated Hebridean Ware, but also sherds of Grooved Ware, Beaker and a Cinerary Urn. Grooved Ware is rare in the Hebrides, and coupled with the Beaker, they suggest the reuse of the cairn during the Late Neolithic and Chalcolithic or Early Bronze Age (Sheridan *et al.* forthcoming).

The style of architecture at the recently excavated cairn at Geirisclett, also on North Uist, is very different, with a simple polygonal chamber under a modest cairn (NF77NE 15; Dunwell *et al.* 2003). It shares similarities with Clettraval, also on North Uist and excavated by Scott (NF77SW 15; Scott 1935, 480–536), though here the covering cairn is trapezoidal on plan, and the chamber is up to 12m long, comprising five compartments separated by high sill stones (Fig. 8.2). Pottery recovered during the excavations is mainly Hebridean Ware, but again incorporates fragments of Beaker. These tombs are in keeping with Henshall's Clyde tradition, though Piggott observed that Clettraval was a “structural hybrid” between the passage grave and Clyde traditions (Piggott 1954, 225). Henshall agreed, going as far as to suggest that Geirisclett may be earlier than the more elaborate form developed at Clettraval (Henshall 1972, 280), while Henley places these chambered cairns of the Western Isles in a pivotal position at the interface of the two monument traditions, rather than being marginal to both (Henley 2004; 2005).

Although the style of architecture of these particular cairns can be assigned with some confidence, in other cases the character of the chambers is less assured. Broadly speaking this is a problem of preservation, on the one hand because chambers have been robbed, and on the other because the detail of their architecture is masked by the covering cairn. Of the fifty-five chambered tombs recorded in the Western Isles, thirteen are no more than possible examples. A number with definite chambers are too poorly preserved to allow classification, while in a few cases the architecture does not conform to either tradition. The Witches Grave, Leaval, on South Uist, is a case in point, surviving as little more than a stone-lined box (NF71NE 4). The cairn was probably robbed in the Bronze Age to create a

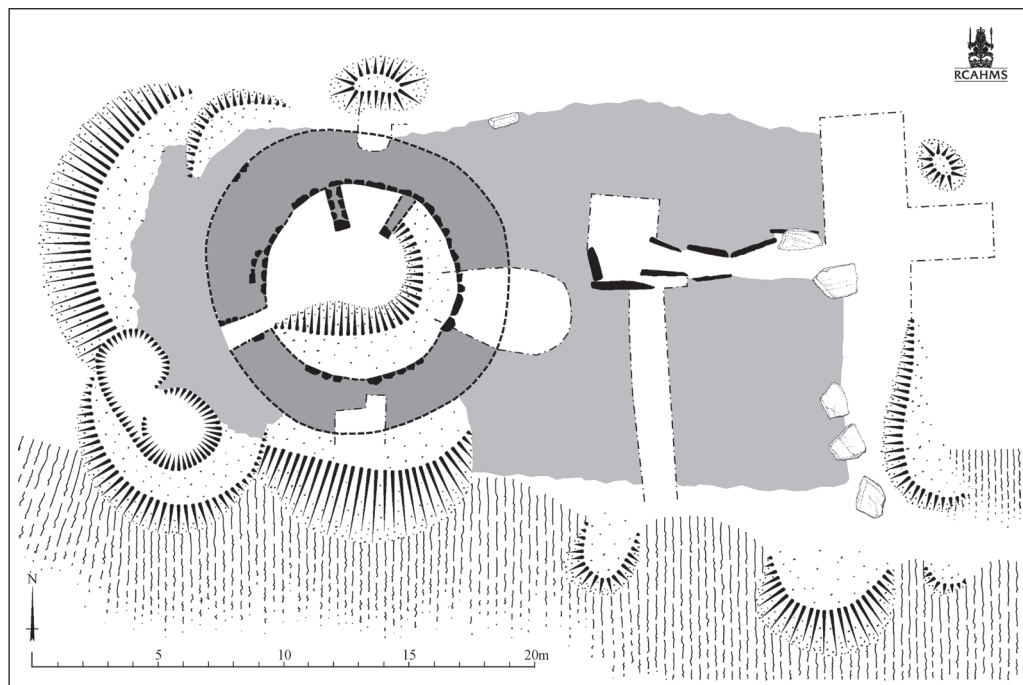


Fig. 8.2: Plan of the chambered cairn, Clettraval on North Uist. The orthostats of the façade lie displaced at its east end, those on the south reducing in height towards the outer edge of the cairn. The chamber is set on a slight curve, and is not central to the surviving cairn material. The cairn was robbed extensively in the Iron Age to build the aisled roundhouse that overlies its west end. The trenches and spoil dumps of Scott's twentieth century excavations can still be seen. (GV005147 © RCAHMS).

small field or enclosure, but excavation in 1999 by Niall Sharples and Vicki Cummings was unable to find any trace of a passage leading towards the supposed chamber (Cummings & Sharples 1999, 93).

More recent research has focused on an interpretative analysis of the cairns, reviewing their distributions (Müller 1988) and their landscape context (Cummings *et al.* 2012). Most are situated in prominent locations on the slopes rather than the tops of hills, lying inland from the coast and commanding extensive panoramas. The visual impact of the monument from afar may not have been a primary concern, but the masses of grey stone certainly stand out in the present heather-clad landscape. Some tombs occupy positions that overlook specific areas of ground, such as Glac Hukarvat on South Uist, well above the present extent of cultivated ground and today considered to be peripheral (Fig. 8.3; NF73NE 2). Others, however, including Geirisclett on North Uist and Carnan, Sig More, on South Uist, are situated on the present High Water Mark (NF84NW 2). They too are peripheral, but a periphery created by the inundation of a Neolithic land surface, hinting strongly that others may yet be found beneath the sea.



Fig. 8.3: The chambered cairn, Glac Hukarvat on South Uist, stands at the head of a broad flat-bottomed valley looking northwards across an area of rough grazing. On a clear day, it is possible to see St Kilda. (P1000740 © RCAHMS).

THE SETTLEMENT EVIDENCE: SHOULD I STAY OR SHOULD I GO?

By virtue of excavation and chance discoveries in the machair, a wide range of evidence for Neolithic settlements has been recovered from the Western Isles. By all accounts, the structural evidence is relatively flimsy and has as yet to match the spectacular Orcadian architectural detail of Skara Brae (Childe 1931), Barnhouse (Richards 2005) and the Ness of Brodgar, Orkney (<http://www.orkneyjar.com/archaeology/nessofbrodgar/>). Nevertheless, recent survey and excavation in the Western Isles and Small Isles have identified new types of site that hold the promise of a more extensive pattern of inland Neolithic settlement. These include islets on North and South Uist interpreted previously as Iron Age duns, and a series of mounds on Canna, suggesting that numerous settlements of this period may be visible, but have simply not been recognised for what they are.

The first clue regarding the antiquity of occupation on an islet was recorded over a century ago on Eilean an Tighe, “house island”. Here Beveridge noted several stone structures, some of which are undoubtedly relatively recent, but the finds he recovered included Neolithic pottery and flint tools (NF87SW 1; Beveridge 1911, 222). Scott returned

to the islet in the 1930s to reveal a complex stratigraphical succession, beginning with a sequence of hearths and some possible structural remains, associated with large quantities of Neolithic pottery. His interpretation of the site as a “Western Neolithic pottery workshop” with “three kilns of horizontal type” (Scott 1953, 1–37) is now discounted, but amongst the finds recovered during his excavations were several fragments of polished stone axes, one of which has been identified as porcellanite from Northern Ireland.

A second islet settlement on North Uist, Eilean Domhnuill, was identified in the 1980s by Ian Armit, though this too had been explored by Beveridge (NF77NW 3; Beveridge 1911, 198; Armit 1996, 43–50). Armit uncovered a complex sequence of buildings, closely interwoven with localised fluctuations in the loch level, and while Neolithic pottery was abundant, the impoverished lithic assemblage comprised tools made of locally available quartz.

Most of the buildings on Eilean Domhnuill were poorly preserved, but the most recent, a conjoined pair of sub-rectangular stone structures with rounded internal and external corners, lead Armit to draw analogies with Knap of Howar, Orkney (Ritchie 1984, 40–121). More importantly, there are upwards of thirty such islets known on North Uist alone, many more of which may have Neolithic origins. Indeed, on South Uist, flint and pottery have been discovered on the shores of an islet on Loch a’ Choire (NF71SE 32; Henley 2012), suggesting that this represents a much more widespread pattern of settlement, while Hebridean Ware recovered by a diver from Loch an Duna, Lewis, has been reported to Stornoway Museum (Bicket *et al.* 2012, iv).

In contrast to these islets, Neolithic settlement remains have also been exposed by aeolian erosion along the Atlantic coast. Of these, The Udal, North Uist (NF87NW 2; Crawford 1996) and Northton, in the south-west corner of Harris, are the best known (NF99SE 2; Simpson 1966 and 1976), but to these can now be added An Doirlinn, Orsay, South Uist, where excavations in 2012 revealed a series of stone buildings of Neolithic date as well as Grooved Ware (NF71NW 5; Sharples 2005, 147; Sheridan pers comm; http://www.neolithicsteppingstones.org/_/Outer_Hebrides.html). The Udal remains unpublished, but at Northton, Harris, Derek Simpson excavated two successive Neolithic phases of occupation, the earlier represented by little more than a few sherds of pottery and some fragments of bone, and the later by areas of burning, a short length of walling and some deliberately placed boulders (Simpson *et al.* 2006). Though the character of this structure remains uncertain, the pottery recovered during the excavations included both Hebridean and Unstan Wares. This second phase at Northton has been dated to 3300–2900 BC.

Traces of Neolithic settlement have also been found at other inland locations, including Bharpa Carinish, North Uist (NF86SW 45), where adjacent to the chambered tomb Anne Crone identified a complex of hearths and stone-walled enclosures beneath blanket peat (Crone 1993, 361–82). Evidence for structures is scant, reliant on arcs and alignments of boulders and a scatter of stake holes, reminiscent of the early phases at Eilean Domhnuill, and likewise raises the possibility that the walls of Neolithic buildings employed turf and stone, either with turves laid on low footings, or forming the core between stone faces. The pottery assemblage and the radiocarbon dates broadly match those from Northton.

Two further sites on North Uist were revealed during watching briefs. The first, at Rubh a’ Charnain Mhoir, Berneray Causeway, on the north eastern tip of North Uist,

included a large shallow pit and associated deposits containing the remains of up to 150 pottery vessels, together with tools of flint and quartz and a fragment of a macehead (NF97NW 8; Downes and Babcock 1998). The second lies near the chambered cairn at Barpa Langass (NF86NW 34; Holderness 2007). In this case a hearth and some arrangements of post settings suggested the presence of structures, alongside two quartz processing sites and the base of a vessel of Hebridean Ware (Sheridan pers comm). Both were interpreted as the remains of Neolithic settlements.

The probable use of turf and stone in some of these Neolithic buildings may go some way to explaining discoveries made in the 1990s on Canna, one of the Small Isles (Gannon & Halliday 2002; RCAHMS 1999). The majority of the settlement remains appear to be rectangular and oval shieling-huts, some of which occupy substantial mounds, and are relatively common on shieling sites, formed by the decay of successive turf and stone huts. What is unusual in the case of Canna is the range of pottery, flakes of flint and pumice, that has been recovered from the upcast of rabbit burrows. Remarkably, the pottery assemblage from five relatively featureless mounds includes sherds from Neolithic lugged bowls, Unstan Bowls, Late Neolithic vessels and Beakers (Fig. 8.4).

These discoveries are sufficiently unusual that it is worth describing them in a little more detail. Three stand within the most heavily improved fields at Tarbert, a natural isthmus that divides Canna in half, the northernmost two perhaps originally a single mound reduced to little more than low amorphous spreads of earth lying some 20m apart. Rabbit burrows reveal several large stones in the core of the larger and the pottery collected from here includes a small sherd decorated with incised lines and stabs, tentatively described as Grooved Ware (Fig. 8.4, third row from top, second from right). The third mound, which measures some 10m across, is situated on a natural rise and has yielded a flint chip, a beach pebble, a piece of pumice and two sherds of Unstan Ware.

The fourth mound is set on a terrace high up on the southern flank of the island 1.5km to the east of Tarbert, and is little more than a broad swelling in the surface of the ground. The bulk of the pottery from here comprises featureless body sherds, but there are sherds from undecorated globular bowls, a sherd of Unstan Ware, and another of Beaker.

The fifth and final mound lies on the leading edge of a terrace that forms part of the floor of a rocky amphitheatre immediately east of the Tarbert isthmus and has provided almost half of the total pottery assemblage; it seems likely that other finds previously recorded from the general area derive from this location. The mound is overridden by lazy-bed cultivation, and like the others is no more than a low swelling, in this case measuring some 20m across and incorporating traces of two stone features, one of which appears to be an oval structure measuring 2.8m by 2.3m over a boulder kerb. The pottery includes both plain and decorated vessels, some of which belong to globular bowls with carinations, and two large body sherds with horizontal perforated lugs. The decorated sherds include stab, impressed and incised wares, the latter probably belonging to an Unstan bowl, together with another small rim sherd of Beaker. The extent of the site was investigated by Jill Harden in 2006 and 2007, recovering large quantities of Neolithic pottery, worked flake tools and debitage of Rum bloodstone, as well as quartz and other stone types, all from undisturbed contexts. Two dates from the site suggest a period of use from 3340–3080 BC (Harden 2006, 101; 2007, 123). While the character of these deposits is not fully resolved, there is not much doubt that they are composed of a mixture of turf, earth and midden, representing

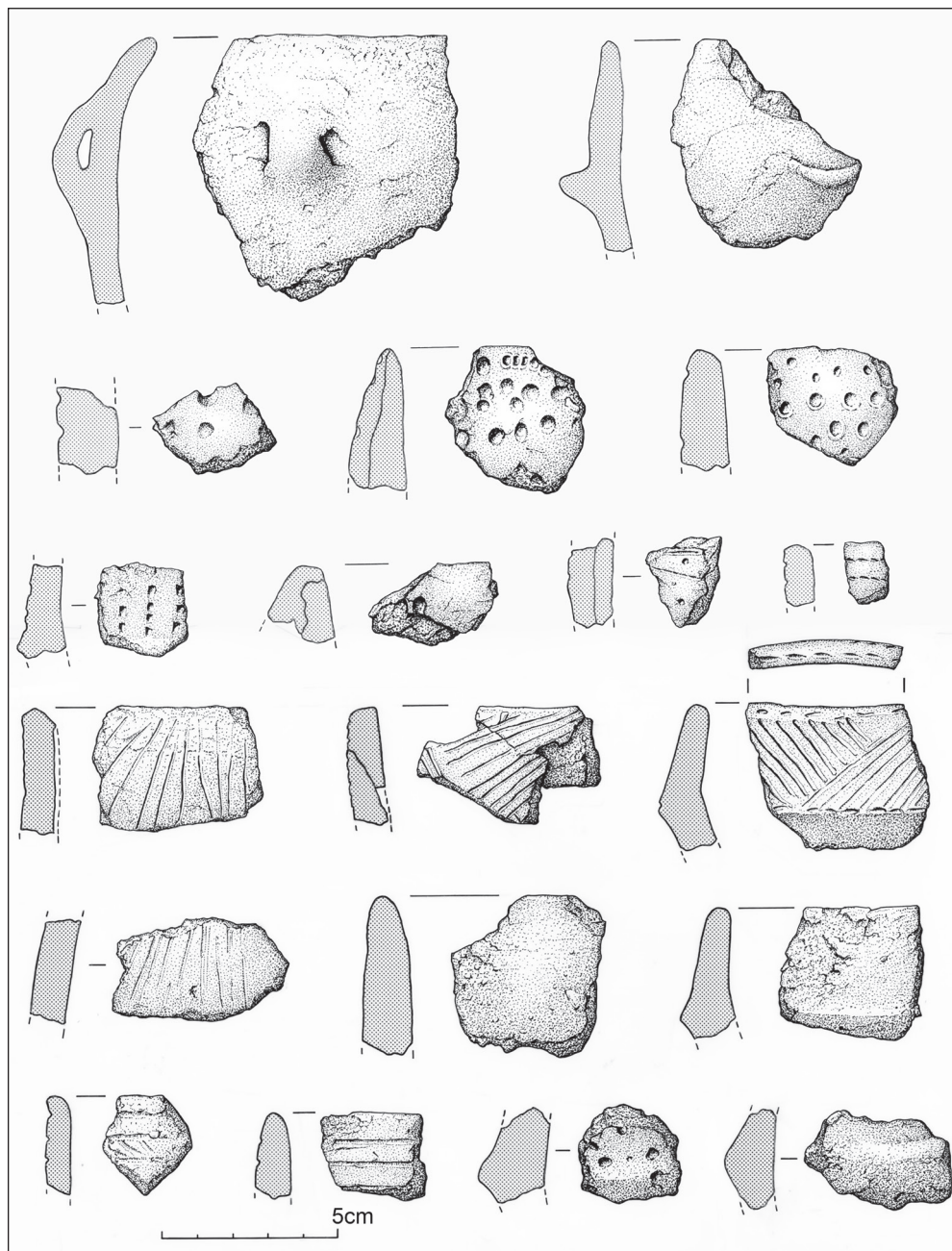


Fig. 8.4: Pottery recovered from the mounds on Canna includes both plain and decorated vessels, some of which belong to globular bowls with carinations. There are also two large body sherds with horizontal perforated lugs (top row). The decorated sherds include stab, impressed and incised wares, several of the latter belonging to Unstan Bowls (fourth row from top). Drawing by Marion O'Neil. (SC1366937 © RCAHMS).

an occupation site, and finding some resonance with the discoveries at Bharpa Carinish, and in an Early Bronze Age context at Allt Chrysal on Barra (NL69NW 7.06; Foster 1995).

The mounds on Canna provide a glimpse of the type of field monument that may characterise Neolithic settlements in inland locations, though a curious stone structure noted on Eigg introduces another (NM48SE 33). Oval on plan, it measured 8m by 4.3m within a wall up to 2m in thickness and faced with large stones. The entrance in the slightly flattened east end was just over 2m wide, flanked externally by a pair of upright stones. The closest parallels for this structure are to be found amongst the supposedly Neolithic houses on Shetland (*e.g.* Whittle 1986; Barclay 1996), though recent analysis suggests that these are probably no earlier than the Bronze Age (Downes & Lamb 2000).

With the exception of this undated building on Eigg, there are a number of common strands running throughout the settlement evidence. Typically the walls of the buildings seem to have been of turf, which goes some way to explain why the excavated remains appear so ephemeral today. Individually, the walls of these buildings have decayed to almost nothing, but where multiple reinstatements have taken place the decayed remains of turf and midden may form a recognisable mound. In practice, there may be little difference then between the turf structures on Canna, those around the hearths at Bharpa Carinish, those from Northton and those from the earliest phases at Eilean Domhnuill.

THE ARTEFACT EVIDENCE: LIVING IN THE MATERIAL WORLD

Whether the buildings found in the isles are replicated on the mainland is unknown, but the pottery assemblages, and other aspects of contemporary material culture, reveal an extensive network of contacts. Hebridean Ware, for example, represents a recognisable regional style. It appears to be a fusion of the two early ceramic traditions, namely the Carinated Bowl of southern and eastern Scotland, and the Breton, Atlantic strand of western Scotland, and first appears in the archaeological record in the late thirty-eighth or thirty-seventh century BC (ScARF 5.1.1). By contrast, Unstan Ware expresses a much wider identity, with links northwards to Orkney, where the type-site provides its name. However, while in Orkney there is a strong argument for the development from Unstan Ware into Grooved Ware, and indeed for placing the origins of Grooved Ware in this northern outpost of Scotland (Sheridan *et al.* forthcoming), in the Western Isles, as we have seen above, occurrences of Grooved Ware are more restricted. Rather than Grooved Ware, later assemblages in the Hebrides boast a predominance of Beaker pottery, possibly suggesting different patterns of movement and social exchange by the Late Neolithic.

Other aspects of the material culture provide compelling evidence for far-flung links southwards, at least in the Early Neolithic. The porcellanite axehead from Eilean an Tighe, for example, is one of more than a dozen from County Antrim known from the Hebrides. Most of the axeheads appear to be in pristine condition, implying a symbolic rather than practical function (Sheridan 1992, 201; ScARF 3.3.5; ScARF 5.2.2). The most famous is the hafted axehead from Shulishader (NB53SW 11), a short distance to the north-east of the chambered cairn at Cnoc nan Dursaine; the shaft dates to 3490–2910 BC.

Though these have evidently been imported over long distances by sea, the lack of primary sources of flint nodules necessitated the use of a wide range of local alternatives

including quartz and, in the Small Isles, Rum bloodstone. Quartz has long been recognised in prehistoric assemblages in Scotland, but it is perhaps only in the north and west, where better quality material is available, that it seems to have formed an important resource (Wickham-Jones 1986, 3). Worked quartz was recovered alongside flint tools at An Doirlinn, Orosay, South Uist (Sharples 2005, 147), and also from the two islets Eilean an Tighe and Eilean Domhnuill on North Uist, as well as from the mound investigated east of Tarbert on Canna. The knapping techniques for quartz indicate very different detachment characteristics from flint and this may account for the lack of identification in earlier excavations.

Other coarse stone tools are typically made of local materials. Skaill knives, flaked stone bars, cobble tools and flaked cobbles are all characteristic of Neolithic assemblages elsewhere in Scotland, particularly on Orkney and Shetland. On Orkney, Skaill knives made from micaceous sandstone beach cobbles comprise an important element of the Late Neolithic material culture and have long been recognised at settlements such as Skara Brae, Links of Noltland, Rinyo, Pool and Tofts Ness (Clarke 1992, 245, table 18.1; Saville 1994, 103–4). The production of Skaill knives appears to have outlasted many other tool types, for they also occur in Bronze Age contexts on Orkney and Shetland (Clarke 1992, 257; Harden & Lelong 2011, 151). On Shetland, flaked stone bars and stone ard points have been associated with the prehistoric fields and houses (Fleming 2005, 47), for example at Scord of Brouster (Whittle 1986) and Kebister (Owen & Lowe 1999). What is curious, however, is that with one exception, equivalent assemblages have not been identified in the Western Isles (Clarke 2006; Harden & Lelong 2011, 171).

The exception is St Kilda, where an extensive assemblage of stone implements has been reused throughout the later buildings and walls in Village Bay, Hirta. Despite its remote position forty-five miles west of North Uist, two sherds of Hebridean Ware have also been recovered from an eroding cliff section in Village Bay, and the first cereal pollen in a peat core from Conachair just behind Village Bay appears at the end of the fourth millennium BC (Meharg *et al.* 2006, 1826). The implements include Skaill knives, flaked stone bars, cobble tools and flaked cobbles, and quarries for raw materials have also been identified (Fleming & Edmonds 1999). Flaked stone bars (termed hoe blades by Fleming and Edmonds) are present in prolific numbers, made from local greyish green dolerite, and many appear to have broken during use and bear traces of heavy wear (Fleming & Edmonds 1999, 131). On average, they are wider than those from the Northern Isles (Clarke 2006; Harden & Lelong 2011, 39), and some have tangs and may have been hafted to wooden handles, though no native wood was available on Hirta (Fleming & Edmonds 1999, 132). This assemblage is anomalous in the Western Isles, and while some of the tools may be post-medieval in date, others are at least as early as the Iron Age such as those from the souterrain, Taighe an T-Sithiche, in Village Bay (NF19NW 7), and from the excavated structures on the lower terraces below Mullach Sgar on the west side of the bay (Harden & Lelong 2011, 37–42).

DISCUSSION: HIGH TIDE AND GREEN GRASS

This paper set out to explore several strands of field-gathered evidence that reflect different forms of movement and mobility, at one level entirely local, perhaps representing seasonal movements within individual islands, at another the regional integrity of the Neolithic of

the Western Isles, and beyond these, the more exotic items that speak of contact much further afield. At every level, the sea has made its mark, demanding skills of seamanship and navigation, and an intimate knowledge of a changing seascape that has its roots firmly in the Mesolithic. It was a well-sailed route that first brought farming to the Western Isles, so it is surprising that the early Neolithic pottery traditions, both Carinated Bowl and Atlantic Breton types are apparently absent; if sites found and excavated to date are a true reflection of Neolithic activity, this area was not colonised until late in the thirty-eighth century BC (ScARF 3.3.4).

The dynamics of sea-level change and the impact on coastlines are neither uniform nor synchronous, but a microcosm of the separation of Britain and the Continent was in effect played out in the Western Isles. While significant changes to the steeply shelving coasts facing The Minch would have been relatively slight during the Neolithic, the tilting of the Western Isles through isostatic recovery would have created extensive and rapid changes to the coastal geography of their Atlantic fringe. It was not simply that the Western Isles was significantly reduced in area between around 4000 and 2000 BC (Sturt *et al.* 2013), beginning in a period of increased climatic instability and storminess (Tipping 2010), but that Neolithic land surfaces, perhaps monuments and even the earliest settlements too, were lost to the sea. Places once accessible on foot were now only accessible by boat. The character of the coast was changing as well, as the shell sands of the machair were blown ashore, shifting with every storm. This was a truly dynamic environment.

The archaeological record as presented in this paper illustrates the three forms of movement and mobility defined above. The first reflects the process of daily life. The apparently ephemeral nature of the settlements reveal the use of local materials, essentially turf and stone, to build houses, but Armit has also argued that the repeated rebuilding and replacement of structures at Eilean Domhnuill indicated the annual or seasonal re-establishment of the settlement (Armit 1992, 316). This may be one of the signatures of mobility in a pastoral society (Barclay 2004, 35), akin to much later shieling practices. At any rate, while the presence of several saddle querns at Eilean Domhnuill is typical of farming settlements, the continuing use of “wild foods” such as hazelnuts betrays some degree of foraging, even if only to gather “field-edge resources” (Warren 2004, 95). The quartz tools are again materials to hand, but with the fracturing of the landmass that preceded the creation of the Western Isles as an archipelago; this may well have involved channel crossings. Likewise grazing movements on that earlier landmass at the beginning of the Neolithic may have involved tidal crossings by the end. The distribution of chambered tombs on North Uist, Benbecula and South Uist, for example, interpreted today in terms of the occupation of separate islands, with a dense concentration on North Uist, could perhaps be seen as the creation of fixed points in a wider pattern of land-use that was disarticulated by the rising sea. Communities may have been mobile, but they still recognised and returned to their monuments to bury and remember their dead.

Foraging provides perhaps the clue to the first attested occupation of St Kilda, for though cereals make their appearance during the Neolithic, the earliest inhabitants of the Western Isles would have been well aware of the seasonal movement of seabirds. This would surely encourage ventures to Hirta and Boreray, if not to settle then to harvest the seabirds during the breeding season (Harman 1997, 56–8; Harden & Lelong 2011, 170–1). Despite the intervisibility of St Kilda with Harris and North Uist, this crossing is no mean

feat, fraught with danger and uncertainty, as accounts of post-medieval voyages make clear. Evidently, however, this was within the capacity of their craft. Coupled with the ability to interpret Nature and its rhythms to determine the optimum times to travel, this not only underpinned the colonisation of the Western Isles across The Minch, but maintained the cultural unity of the people to either side. Thus the architecture of the chambered tombs is instantly recognisable in the features of the Hebridean group, and the Clyde cairns too, revealing shared beliefs across wide areas of Atlantic Scotland. This was not the result of one-off contact, but of regular traffic, maintaining cultural unity that is further corroborated by the pottery assemblages. Hebridean Ware is recorded at both chambered tombs and settlement sites, and of course there are the two sherds from Village Bay, Hirta, that confirm an early presence on St Kilda.

Whether regular traffic can account for the presence of Unstan Ware in the assemblages both sides of The Minch is a little less clear. If so, it does not seem to have been sustained, for despite the occasional appearance of Grooved Ware, the progression from Unstan Ware seen in Orkney finds no equivalent in the Western Isles. Similarly, there is a divergence in the character of the large ritual and ceremonial centres between Orkney and the Western Isles, and the unique arrangement of the stones at Callanish, Lewis.

The notion of regular sea traffic should be treated cautiously, especially in terms of links to the Northern Isles displayed in the Skaill knives and flaked stone bars discovered in some quantities on St Kilda. Fashioned from local stone, as yet they cannot be assigned with certainty any earlier than the Iron Age. Nevertheless, they do add an extra dimension to the understanding of material culture, especially in relationship to islands where supply and demand are inextricably linked to the availability and sustainability of resources. In short, some types of stone tools may be conceived independently in similar environments and remain in use for longer periods where that raw material is abundant and there is no readily available alternative. The general absence of flaked stone tools from the rest of the Western Isles is otherwise extraordinary, as is the absence of any implements of St Kildan dolerite outwith its compass.

Yet there can be no doubt of a wider pattern of contact. Apart from the character of the Unstan Ware and the systems of belief evinced by the shared architectures of the chambered tombs, the presence of porcellanite axeheads in the Western Isles is tangible evidence of a link with County Antrim, far across the sea to the south. Whether transported in stages or in a single trip, they presumably arrived as finished artefacts, instantly recognisable in Neolithic society as foreign material. Their occurrences, as far as can be said, are from non-domestic contexts and suppose they were prestige items carrying inherent value beyond any practical application. This implies a different level of exchange in comparison to local materials such as quartz, or even the appearance of materials like Rum bloodstone within discrete territories. Quite how this was organised, how frequently and what else may have been exchanged simultaneously remains unclear.

CONCLUSION: RED SAILS IN THE SUNSET

Today, islands capture romantic notions of remoteness and isolation, of people surviving against the odds in extreme environments, and of living life on the edge of the world

(Maclean 1983). Islands are often regarded as places where people played out their lives within clearly defined physical boundaries, free from external influences and in control of their own fate. As such the sea is seen not so much as a great vastness of “nothingness” (Jamie 2012, 138), but as a barrier and cause of insularity. This view is now challenged as a modern misconception, by Barclay in relation to the arrival of Neolithic “colonists” (Barclay 2004, 32) and more recently by Fleming with reference to St Kilda’s historic past (Fleming 2005, 12).

For the Neolithic, the sea was not simply a backdrop, but was an active medium, conveying different plants, animals and material culture, as well as an understanding of technologies expressed in monumental architecture, pottery production and stone tool manufacture. The Neolithic communities on these Scottish islands lived within geographical boundaries that demanded local mobility to sustain their lives and exploit their environments. Equally they required regional mobility to share and develop their ideas and express their cultural unity. And yet beyond this, there was a demand for exotica from much further afield to cement their social relationships. They lived in a dynamic world in which patterns of interaction inevitably changed over time, but the continuity of their existence lay with the sea, in the ‘rathad mara’ and ‘astar mara’ (Gaelic for the sea road and sea lanes, Macfarlane 2012). This was the watery expanse that linked islands, connected communities and provided the routes to share and exchange.

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Scattered in time and space: Ploughzone lithics and mobility in the Neolithic

Jonathan Last

CHANGING PARADIGMS OF NEOLITHIC SETTLEMENT

Much Neolithic archaeology in post-war Britain was undertaken with the expectation that if archaeologists looked in the right places they would find evidence of farming villages with permanent houses akin to the LBK settlements being unearthed on the continent (Piggott 1954, 26–7). By the 1970s, however, Neolithic settlements with structures were still proving elusive and it was clear that the topic needed to be approached in other ways. For example, Bradley's (1978) groundbreaking study of prehistoric settlement in Britain makes little reference to houses and is essentially an exercise in landscape interpretation, expanding the scale of inquiry beyond the individual site. Many field researchers did the same thing, as they initiated systematic, large-scale collection of surface artefacts, primarily lithics. These major fieldwalking projects in turn led to growing recognition of the complexities of lithic data, and the importance of understanding 'off-site' distributions across a landscape (Foley 1981). Eventually the assumption of a settled Neolithic with farmhouses and fields was replaced by a new paradigm that suggested occupation was, in most places, relatively mobile and transient, as in the preceding Mesolithic (Thomas 1991, chapter 2). As a result it was monuments rather than settlements which came to be seen as the defining features of the British Neolithic, and the majority of interpretative effort since the 1990s has been aimed at these. For Thomas (1991, 181–2) monuments "were as fundamental to the Neolithic way of life as was the use of domesticates", even as the people remained "attuned to a mobile lifestyle".

The 'monuments and mobility' model was reinforced by a more phenomenological turn to understanding the landscape of Neolithic (and Mesolithic) settlement which also developed during the 1990s. This drew heavily on Ingold's influential essay *The temporality of the landscape*, which introduced the archaeology-friendly notion of the taskscape as "an array of related activities" (Ingold 1993, 158). The approach has been taken up by archaeologists with a particular interest in lithics – understandably, given that flint scatters, more than any other type of site, appear to embody "patterns of routine activity across the landscape" (Edmonds 1997, 99). As a concept fundamentally rooted in social life the taskscape provided an important corrective to the key assumption of the 'off-site' approach that "the structuring of human action within an environment is reducible to the resources that it affords" (Pollard 2000, 366). Instead, as Edmonds (1997, 108) puts it, "In tracing these taskscapes, we can also explore how the character and tempo of routine tasks was itself caught up in the reproduction of the social world".

But having influential models did not mean that Neolithic settlement in Britain was well understood; while studies of monuments multiplied, the archaeology of settlement lurked “as an embarrassing reminder of a neglected, though critical, dimension ... hindered by expectations, poor theorization, and the often intangible nature of the evidence” (Pollard 2000, 363). For some reason, work on lithic scatters had not provided the expected level of insight into the character of occupation and mobility. A volume on Neolithic landscapes (Topping 1997) has surprisingly little to say about lithic scatters. With a few exceptions, the large-scale fieldwalking projects of the mid-1970s to mid-1990s have no recent successors. This retreat reflects a lack of confidence in the significance of ploughzone sites and the methodologies used to investigate them, which has also led to fieldwalking coming to be seen primarily as a means of prospection or evaluation, rather than a research tool in its own right.

The changing role of fieldwalking can be related to broader interpretative and methodological developments, which fall into three broad paradigms, coinciding respectively with culture-historical, processual and post-processual theoretical influences, as well as with changes in the way fieldwork was organised (Table 9.1). There is a key overlap in the early 1990s, a time when many fieldwalking projects which had taken place some years earlier were published, and English Heritage implemented its own Lithic Scatters Project (LSP) in response to recommendations that knowledge of surface lithic scatter sites was in urgent need of consolidation. This was also the period in which the PPG16 model of development-led archaeology was established. The changes in approach during the 1990s are exemplified by a comparison of the language used in two papers on lithic scatters published less than a decade apart in the *Proceedings of the Prehistoric Society*, by Schofield (1991a) and Edmonds *et al.* (1999): whereas the former refers to human behaviour, adaptive response and home range, the latter talks about taskscape, movement and trace. Tellingly, in the context of a time of paradigm shift, the LSP was never completed, though it did produce an important guidance document (Schofield 2000).

In the last decade, the study of Neolithic settlement has been revived, though it has focussed predominantly on pits and their contents, much of the work drawing on the results of large-scale development-led archaeology (Anderson-Whymark and Thomas 2012; Garrow *et al.* 2005; Garrow 2007). In this model, pits are seen as a conceptual link between settlements and monuments, providing evidence for both occupation and the kinds of depositional practices seen on a larger scale at ceremonial sites (*e.g.* Pollard 2001). They are usually interpreted not as structural evidence for permanent settlement but as markers of places to which Neolithic communities periodically returned. Hence the idea

Table 9.1: Three ‘paradigms’ of Neolithic settlement research since the 1970s

<i>Period</i>	<i>Theoretical approach</i>	<i>Landscape model</i>	<i>Fieldwork context</i>	<i>Role of fieldwalking</i>
Pre-1975	Culture-historical	Environmental background	Unsystematic	Site identification
1975–1995	Processual	‘Off-site’ archaeology	Rescue archaeology	Landscape investigation
post-1990	Phenomenological	Taskscape	Development-led	Evaluation

that Neolithic settlement was transient and repetitive has generally retained its currency. While the Neolithic ‘houses’ that have also been discovered through development-led excavation in recent years, such as that at White Horse Stone in Kent (Garwood 2011), look very much like the sort of thing Piggott and others were anticipating, they have usually been interpreted as a type of monument or ‘public architecture’ (Thomas 2008, 79) and not used to challenge the mobility model; they are still vastly outweighed by the number of sites with pits only. Nevertheless, the focus on pits and houses serves to emphasise how peripheral lithic scatters have become to discussions of Neolithic settlement.

This review outlines some of the issues which arose during the heyday of fieldwalking in order to consider what was learnt about lithic sites in the ploughzone, why interest declined, and what our future approach should be, in the light of new techniques and current debates about Neolithic settlement and mobility. While lithic scatters may well comprise “one of the most reliable indicators of human use of the landscape” in prehistory (Lithic Studies Society 2004), do they allow understanding of Neolithic occupation and activity in more than the vaguest of terms? I will try and suggest how the insights offered by lithic scatters can at least be deployed against some of the stubborn dichotomies in our models of the Neolithic.

LITHIC SCATTERS RESEARCH BEFORE 1995

Discussion of Neolithic flint scatters overlaps not only with lithics of other periods but also other areas of ploughzone research. Most fieldwalking surveys collect or record all visible artefacts, although some may be geared towards particular types of material (*e.g.* Williamson 1986; Garton 2007, 22). However, lithics have received more theoretical and methodological attention than other artefact types, probably reflecting the fact that while later material (principally pottery and building material) can usually be interpreted either as evidence of structures surviving, to some extent, below the ploughsoil or as manuring scatters, the meaning of a lithic assemblage is harder to pin down: it is often a palimpsest, difficult to divide into discrete sites, and may not be associated with structural remains such as pits and postholes, *i.e.* a flint scatter in the ploughzone is often not a marker of a buried site (however that is defined), it is the site. As Schofield (1992) puts it, scatters provide the bulk of settlement evidence for periods in which few excavated occupation sites are known, as well as representing those aspects of off-site behaviour for which sites containing structures never existed.

Lithic scatters were recognised as an integral part of the archaeological record from at least the beginning of the twentieth century (Schofield 1992). Much early research involved searching for diagnostic implements, usually on cultivated downland, though also on moorland (*e.g.* Spikins 2002). After the War, collecting became more controlled and waste material was collected alongside diagnostic types, for example by J. C. Draper and G. W. Willis in Hampshire, allowing the development of more quantitative approaches. But the heyday of fieldwalking was in the 1970s and 1980s when systematic and intensive work covered large parts of southern England, influenced by the ‘off-site’ approach and growing awareness of the impact of agriculture and drainage on the historic landscape. These projects covered large areas in Berkshire (Ford 1987a; Gaffney & Tingle 1989;

Lobb & Rose 1996; Richards 1978), Dorset (Barrett *et al.* 1991; Woodward 1991), the Fenland (Hall & Coles 1994), Hampshire (Light *et al.* 1995; Shennan 1985; Schofield 1991a), Northamptonshire (Martin & Hall 1980; Parry 2006) and Wiltshire (Richards 1990). Broad conclusions for the Neolithic included the recognition that areas without monuments may still have been intensively occupied (Schofield 1991a), that lithic densities varied on different geologies, and that many areas saw an expansion of settlement in the Late Neolithic (Holgate 1988; Thomas 1999, 17–23).

The achievement of these projects was in their cumulative approach, as summed up by Hall and Coles (1994, 30): “each site wholly unspectacular ... yet taken as a group demonstrating a patterning of activity rarely seen”. Some of this work also began to inform rescue archaeology: where previously the ploughzone was usually removed with little or no record (Richards 1985), Chadwick (1994) reported that by 1989 lithic scatter data from the Kennet valley and East Berkshire surveys were being entered onto the SMR and used in the planning and development control process. The systematic approach in Berkshire “allowed statements relating to past landuse to be made with confidence” (Lobb & Rose 1996, 102).

However, as fieldwalking for lithics developed into a routine technique, various theoretical and methodological issues were raised: how representative are ploughsoil assemblages and what is their relationship to sub-surface deposits? How do we define lithic ‘sites’ and what do they represent?

It is generally estimated from ploughzone experiments that under cultivation at least 2% of a lithic population will appear on the surface of a ploughed field (Clark & Schofield 1991), but of course if soils are deep, for example under colluvium or peat, sites will remain entirely buried (Allen 1991). This gave an impetus for continuing survey in areas like the Fens, where erosion and desiccation of the peat meant hundreds of hidden sites were eventually likely to appear in the ploughsoil (Hall & Coles 1994, 35), but it also highlighted the problem that understanding patterns in fieldwalking data required a better grasp of post-depositional processes. Despite the optimism about the Kennet data referred to above, Chadwick (1994, 55) concluded that “we appear to be some way off being able to make any valid comparisons between prehistoric sites evidenced primarily by lithic debitage”. There was some evidence, for example, that patterning in surface visibility changed over time and therefore several years’ work was required to generate a representative pattern (Spikins 1995), though in practice there appeared to be a lot of variability in this phenomenon.

The complex relationship between surface and sub-surface archaeology was much discussed. For example, Ford’s (1987b, 128) excavation of flint scatters at North Stoke “added to the body of data which suggests that sub-surface features are not to be expected frequently on flint scatter sites”. Excavation of the Fargo Wood 1 lithic scatter near Stonehenge showed a dense and well-defined surface lithic scatter to be partly the result of differential disturbance resulting in the selective visibility of surface artefacts (Richards 1985; 1990). Hence surface collection worked as a tool for broad definition but only where soil depth and post-depositional visibility did not vary. Another cautionary tale was provided by Healy’s work in eastern England, at Tattershall Thorpe and Spong Hill (Healy 1983; 1987). Most excavated features at these sites were Early Neolithic while much of the struck flint from the surface and topsoil was later in date; the conclusion was that less Late Neolithic and Bronze Age material was being deposited in pits. Therefore to machine off unsampled

ploughsoil was to distort an already distorted record: flint scatters rather than pit groups were likely to prove more fundamental to study of the later periods.

The common use of inverted commas around the term 'site' in relation to lithic scatters shows that it was a problematic concept theoretically as well as methodologically. Schofield (1991b, 4) argued that definition in terms of high density patches and background noise was "an argument ... with serious complications": ethnoarchaeological studies showed that discard may not correlate with habitation, while in cases where artefact quantities were low, high density patches could not be regarded as sites at the expense of the 'background scatter'. In short, "where human activity has occurred continuously across the landscape ... such discrete units cannot possibly occur" (Schofield 1991c, 117). Tingle (1987, 98) confirmed that on the chalk uplands of Berkshire "there are no discrete scatters of easily dateable material which can be subject to rapid interpretation". If patterning was apparent it would be on a larger scale: settlement was not a random process and areas of domestic activity tended to appear concentrated in specific landscape zones (Schofield 1991c, 118). For example at Raunds, Northamptonshire, during the Neolithic, this was on the valley slopes rather than the bottoms, where monuments were constructed, or the interfluvies that were probably still wooded (Harding & Healy 2007, 265).

In order to define 'sites' in relation to 'background noise' some projects came up with formal if rather arbitrary definitions. In the Fenland Survey a 'site' was identified if an area covering 10m × 10m was searched for ten minutes and yielded at least 15 finds (Hall & Coles 1994, 10); this compared with a background density of around 10 flints/ha. Others, such as Garwood (1985), argued there could be no uniform criteria for site definition – instead it should be based on concentrations proportional to overall distributions in each field, though subjectivity was unavoidable. In the Raunds survey area "there was a ubiquitous thin scatter of struck flint, within which there were areas of higher density, but no clearly defined 'sites'" (Harding & Healy 2007, 264). In flint-rich areas, as Schofield (1992) notes, distinctions between concentrations and background scatter might be more difficult to establish than in flint-free areas, where lithic concentrations tend to be more clearly defined. Comparisons of fieldwalking results certainly showed a wide variation: Chadwick (1994) compared two different surveys in Berkshire, each covering four different geologies, with average densities varying by a factor of over 30, from 0.4 flints/ha (East Berkshire, London Clay) to 14.8 (Kennet Valley, Upper Chalk).

A related set of questions concerns what these 'sites' represent in terms of activity. A broad distinction was often drawn between 'industrial' (extraction or knapping) and 'domestic' scatters, based on quantities and flake characteristics (*e.g.* Ford 1987c). In the Cotswolds, Marshall (1985) graded flint scatters in relation to their density and the proportion of worked or usable flakes, in order to differentiate settlement from peripheral areas of flint-working. Similarly, in the Upper Meon valley, Schofield (1991c, 119) distinguished 'industrial' from 'domestic' activity, on the basis that the former had higher densities of primary waste but fewer tools and cores. For Hall and Coles (1994, 25ff), the Fenland Survey scatters, such as those around Isleham, were not knapping locations but occupation debris. However, they recognised that distinguishing different types of site was tricky, and considered it a subject for future research; the same went for the question of the relationships between Mesolithic and Neolithic groups implied by the many sites with lithics of both periods. The deferral of such important questions seems significant. Others looked

for means of resolving the palimpsest of activities represented by topsoil lithics (Bowden *et al.* 1991, 111), for example by assessing flake size and shape (Ford 1987c); however, the lack of fine-grained chronologies for lithic scatters clearly limited interpretations of how landscape use developed and changed.

The importance of acquiring more detailed information about scatters through methods other than surface collection was generally acknowledged, though it has been contested by Silvester (1986), who stood up for the vast majority of fieldwalking projects which could not be followed up in that way (the Lithics Scatters Project suggested that over 93% of scatters had seen no further work). For example, Garwood (1985) considered that while broad patterning was visible (*e.g.* in this case a relative lack of sites in the Weald compared with areas closer to the coast), fieldwalking alone was inadequate for reconstructing complete settlement patterns without integration with other methods. Williamson (1994) stated that fieldwalking could not be divorced from wider historical inquiries; for instance, the arable history of an area would have a major impact on the survival and visibility of surface scatters.

THE LITHIC SCATTERS PROJECT

The English Heritage Lithic Scatters Project (LSP) was therefore inaugurated at a time when the value of surface-collected material was being debated and questioned. The project proposed to undertake synthesis of existing data at a national level, in anticipation that this would enable curatorial decision making, provide a database of substantial research potential, expedite the definition of future research priorities and facilitate the appraisal of methodologies for data collection and interpretation. In the event, only the pilot stage was completed, based on data from four counties (Buckinghamshire, Cornwall, Oxfordshire and West Yorkshire). The questions concerned regional and period variation in the survival and integrity of scatters, the effects of different scales and intensities of collection on the discovery and study of scatters, the importance of 'group value' (large-scale surveys and integration of results), and associations with environmental data (geology, soils, topography and land-use). In all, over 3000 records were collected across the four counties and two unpublished reports were produced, one statistical analysis (Lockyear & Shennan 1996) and one evaluating the results more generally (Schofield & Humble 1997). These showed that records from all four counties were dominated by small scatters (80% were small or very small, though the size criteria varied between counties) found during non-systematic survey. The pilot project also confirmed the palimpsest nature of most lithic scatters; in Buckinghamshire, for example, only 26% of sites were single-period, while 54% were multi-period (the remaining 20% were of uncertain date); more recent data from the Portable Antiquities Scheme (PAS) suggest an even lower proportion of single-period sites (Bond 2010).

In relation to the Neolithic specifically, the LSP found that about 55% of dated scatters (or 38% of all scatters) had a Neolithic component while 19% were single-period Neolithic. Of the remainder 9% were Mesolithic and Neolithic, 18% were Neolithic and Bronze Age, and 9% had finds of all three periods. In comparison, Mesolithic scatters comprised a very similar overall proportion, though far more of these were single-period, while Bronze Age scatters were fewer in number. However, there was much variation between counties

(Table 9.2). In Buckinghamshire the Neolithic was represented in far more of the dated scatters than in neighbouring Oxfordshire, which also had a high proportion of undated scatters. The two upland counties, Cornwall and West Yorkshire, had similar proportions of scatters with a Neolithic component, but far more in Cornwall were undated. Densities of Neolithic sites across each county also varied, with West Yorkshire having the highest value, followed by Buckinghamshire.

The only consistent figure from the LSP data is that around one-third of scatters with Neolithic material are single-period, which suggests that many locales used in this period had a considerable longevity. The key question, of course, is whether the variations between individual counties reflect genuine differences in the patterns of Neolithic settlement in different regions, or recording bias. There is no information on how many scatters are Early or Late Neolithic but it is notable that Cornwall is the only county with more Mesolithic-Neolithic scatters than Neolithic-Bronze Age ones. Does this suggest a Late Neolithic decline compared to other regions? Nearly 30 years ago Mercer (1986, 73) noted the lack of evidence for Late Neolithic occupation sites in Cornwall, despite the number of monuments of this period, and suggested we were looking in the wrong places or had not recognised them. This may be an area where the LSP data could be further interrogated.

Lockyear and Shennan (1996) also concluded that some of the data fields recorded by the LSP were not useful for analysis, especially those related to function, where over 90% were classed as unknown and criteria for the remainder varied between counties, no doubt reflecting some of the interpretative issues outlined above. The major analysis they undertook was a logistic regression model of the occurrence of scatters in Oxfordshire in relation to environmental data (geology, soils, topography and land-use) in order to see if lithic scatter locations could be predicted. Although a model using aspect, land-use, soil, solid geology and water correctly differentiated between scatters and random points in 88% of cases, it was very complex and the contributions of individual variables were weak. The conclusion was that while unsystematically collected data may have a role in heritage management, “the only method which could provide unequivocal answers to many of the questions posed would be a programme of further fieldwork” (Lockyear & Shennan 1996). Once again, the answers to key questions about lithic scatters were deferred.

Table 9.2: Lithic Scatters Project data by county

	<i>Buckinghamshire</i>	<i>Oxfordshire</i>	<i>Cornwall</i>	<i>W. Yorkshire</i>
Dated scatters	305	366	596	1031
Undated sites	28 (8.4%)	137 (27.2%)	577 (49.2%)	251 (19.6%)
Neolithic sites	276 (90.5%)	243 (66.4%)	278 (46.6%)	463 (44.9%)
Meso–Neo	30 (10.9%)	11 (4.5%)	83 (29.9%)	82 (17.7%)
Neo only	98 (35.5%)	99 (40.7%)	103 (37.1%)	145 (31.3%)
Neo–BA	105 (38.0%)	119 (49.0%)	50 (18.0%)	139 (30.0%)
Meso–Neo–BA	43 (15.6%)	14 (5.8%)	42 (15.1%)	97 (21.0%)
Sites per sq km	0.15	0.09	0.08	0.23

LITHIC SCATTERS RESEARCH SINCE 1995

The LSP showed both the amount of data available and the difficulty of making sense of it on a regional scale, given its uneven quality. This and a failure to resolve the issues outlined above are likely reasons for the decline in theoretical and methodological discussion of lithic scatters since the mid-1990s, with another factor being the focus on site-based evaluation and mitigation under PPG16 and its successors, rather than broader landscape surveys. While fieldwalking for lithics by professionals, academics and amateurs has continued, data in the English Heritage Archive, though far from complete, suggest it is unevenly practised. Areas of progress include the Trent Valley and environs (Garton 2002; 2007; Knight 1998; Knight & Howard 2004, 35) as well as parts of Northumberland (Waddington 1999; Passmore & Waddington 2009). Fieldwalking for management purposes has been undertaken to a standard methodology in the Stonehenge and Avebury World Heritage Site whenever parcels of land are taken out of cultivation (Pomeroy-Kellinger 2003) and Darvill (2005, 16) reports that over 9km² has been systematically walked around Stonehenge, representing 35% of the World Heritage Site and 7% of the Stonehenge landscape as a whole; extending this data set is one objective of the Stonehenge research framework (Darvill 2005, 130–1). Certainly it provides a very different sense of patterning in the landscape to the distribution of monuments (Richards 1990).

In Cambridgeshire lithic scatters research has continued since the end of the Fenland Survey. One of the most significant studies involved the detailed evaluation of two large scatters at Ramsey and Soham during the subsequent Fenland Management Project. The report summarised the state of research in the late 1990s, noting that scatters were rarely used in landscape studies beyond a ‘dots on maps’ approach, which the authors suggested was down to some of the issues noted above: they are palimpsests, there is a complex relationship between surface and sub-surface distributions, and sites are difficult to define in relation to background noise (Edmonds *et al.* 1999, 47). Some of these issues were addressed in the course of the Ramsey and Soham investigations; in particular the authors suggest that very intensive investigations can produce consistent results. The study also provides evidence for the maintenance of working traditions across the Mesolithic-Neolithic transition, though there is considerable variation in the setting, scale and content of earlier Neolithic scatters. Perhaps most striking is the observation that the largest flint scatters far exceed the number of finds from contemporary monuments: the Soham scatter is estimated to contain some 40 times the quantity of flint present at the Etton enclosure (Edmonds *et al.* 1999, 74). Though these large scatters are complex palimpsests (Soham also saw a long period of activity in the Late Neolithic and much of the Bronze Age) their significance in the Neolithic landscape is clear.

In other areas, however, less has been done in recent years. For instance, Hey (2011, 240–1) notes that in the Thames Valley “comparatively little attention has been devoted to Mesolithic and Neolithic finds scatters in recent years”, partly because fieldwalking has tended to be omitted from requirements for developer-funded evaluation. A long-term programme of fieldwalking in Essex was summarised in 1994 and again in 2007 (Medlycott 1994; 2007). This shows a decline in the amount of work undertaken in the county over time, with 1156 ha covered between 1986 and 1993, but only 709 ha in the 12 years after that.

In commercial archaeology, the use of fieldwalking as an evaluation technique appears to have declined as a proportion of the total number of projects, from about 10% at the start of the 1990s to 3.5% at the end of the decade (Darvill & Russell 2002, 34). Moreover, under PPG16 fieldwalking became part of a set of methods for evaluating (buried) sites, rather than a research technique with its own strengths and weaknesses. Inevitably its effectiveness in evaluations was found wanting; Hey and Lacey (2001) ranked it as poor to moderate in terms of locating and dating sites. Work in Essex showed part of the problem (Medlycott 2007): on the A120 road scheme nine areas of prehistoric activity were predicted by fieldwalking and five were investigated further, four of which produced no features. Meanwhile, twelve areas revealed prehistoric remains not predicted by fieldwalking (nine sites with features and three finds scatters), *i.e.* 64% of sites were unpredicted. However, it was also concluded that fieldwalking was better than trenching at identifying Early Bronze Age and older sites, while the increasingly common strip-map-and-sample technique was seen as even more problematic, which must call into question the enthusiasm for this approach in Hey and Lacey's assessment, at least when it comes to Neolithic sites.

While professional practice may be a concern, other parts of the sector continue to use fieldwalking. As the Portable Antiquities Scheme (PAS) shows, it is one technique that the voluntary sector can undertake without large-scale resources. The PAS now provides a huge lithics database which Bond (2010) has begun to analyse nationally, including a comparison with the LSP. As of April 2007 he had recorded 9550 lithic records, representing about 5% of the total records in the database, but over 50% of prehistoric records. However, given the lack of systematic recording behind much of this data Bond takes a pragmatic approach to the PAS lithic records, as "proxy information on the location and character of lithic scatters" (Bond 2010, 25) which could be returned to with more systematic field survey. Again, lithic data are seen to require further work.

A few academic projects have also involved fieldwalking. Around the Thornborough henges in North Yorkshire lithic distributions allowed a distinction to be made between the 'sacred landscape' of the gravel plateau, where the monuments were located, and a peripheral zone where domestic and industrial activities took place. While Harding (2013, 193) emphasises that arguing for two clearly defined zones (sacred/profane or ritual/domestic) assumes too rigid a distinction between categories of activity, better understanding of the broader setting of the henges has been very helpful both in providing an interpretative context for the creation of monuments and developing a conservation plan for this landscape.

Methodological advances in the study of lithic scatters have also been limited in recent years. We have not moved on very far in terms of lithic typo-chronologies or the ability to characterise flint chemically, which could inform on patterns of mobility. Moreover, the extent to which geophysical and geochemical techniques might be useful for sites without substantial sub-surface features remains moot. Oonk *et al.* (2009, 45) note that "although soil chemistry has been used to study archaeological environments for over half a century, there are still some major unresolved issues that prevent integration of such methodology in archaeological research programmes". Instead the biggest advances have been in spatial analysis and the presentation of data. GIS software now presents us with much greater opportunities to analyse distributions and compare surveys, a prerequisite

to further progress (Spikins 1995), and this may re-invigorate the study of older data-sets, including the Stonehenge Environs survey (Chan 2003) and the Kennet Valley survey (Featherby 2010). However, the ability to undertake more sophisticated spatial analysis only emphasises the need to account for factors influencing the visibility of surface lithics. In this respect the scale of modern development-led archaeology offers important insights, as long as the ploughzone is investigated appropriately. For example, floodplain excavations have demonstrated the extent of ‘geological filtering’ in the Trent Valley, where pre-Roman activity is largely sealed by alluvium (Knight & Howard 2004, 69). On the other hand, Hey (2011) notes that where ploughsoil flint scatters are evident, their interpretation can be aided by insights from extensive excavations, like Eton Rowing Course, where lithics were preserved *in situ* on old ground surfaces.

LITHICS IN THE LANDSCAPE: TOWARDS AN INTEGRATED APPROACH

Lithic data can be considered at a variety of scales, as this review has shown, from national and regional overviews like the LSP to landscape projects and work on individual sites and their environs. Different questions emerge at these different scales: to what extent are data-sets comparable at a regional or national level? Can we separate ‘sites’ from ‘background’ within a survey area? How does the distribution of surface material correlate with sub-surface sites and features? But our understanding of these issues has developed little over the last twenty years, reflecting a lack of ongoing methodological and theoretical work alongside an inconsistent use of fieldwalking and test-pitting within the planning system. The review of archaeological decision-making in evaluations takes fieldwalking primarily as a clue to surviving buried archaeology – it does acknowledge that sites may exist only in the ploughsoil but, worryingly, sees them as disturbed and therefore unimportant: “in these cases it could be suggested that fieldwalking is positively misleading in the decision-making process” while adding the half-hearted caveat that “the investigation of disarticulated sites within the ploughsoil is an issue that development-control officers may wish to pursue” (Hey & Lacey 2001, 33). Such opinions ignore, for example, the exemplary work by Edmonds *et al.* (1999) which shows how much information can be preserved in the ploughzone. If fieldwalking reverts to simply being “a convenient guide to the best place to dig” (Bowden *et al.* 1991, 112) then a whole generation of insights about ploughzone archaeology would be overlooked. Elsewhere, as we have seen, analytical insights have been deferred because there is a perception that the problems outlined above require more data to be collected.

Moving forward with the study of lithic scatters requires re-engagement with these methodological and interpretative issues, bolstered by the analytical power of GIS and the huge datasets provided by development-led archaeology, especially the large-area excavations that bridge ‘point’ and ‘landscape-scale’ data (Thomas 2013). One key requirement is the integration of data from excavation and surface collection so that they can inform upon each other, which requires greater attention to the ploughzone than is common in many development-led projects; a second is the modelling of landscape geoarchaeological processes alongside artefact distributions, so that allowance can be made

for *e.g.* colluvial and slope processes (Waddington 1999). The potential significance of lithics archived in museum and private collections should also be investigated further. Ultimately we need once again to build systematic fieldwalking datasets, not through mega-projects like the Fenland Survey but by ensuring that community fieldwalking and development-led work are carried out to common standards. This requires the issuing of briefs which specify appropriate methodologies for evaluation and investigation of the ploughzone. The resulting data then need to be presented on HERs in more reliable and consistent ways.

Such practical steps may take us some way towards understanding patterns of occupation and movement across the Neolithic landscape. However, in the light of the issues discussed in this paper, it is just as important to have realistic expectations of what surface lithic scatters can tell us. Not many will be as rich as those at Soham and Ramsey. The weaknesses of using ploughzone data alone to try and pin-point buried features or unpick phases of activity are evident; rather than treating lithic scatters as a poor substitute for buried sites, we need to see them as a different aspect of Neolithic activity, complementing the fixed points of monuments and cut features.

Running through more than thirty years' discussion of lithic scatters is the problem of palimpsests. The issue of equifinality between the residues from many small episodes of occupation and those from a few large ones (Edmonds 1997, 103) has major implications for how we envisage settlement mobility in the Neolithic. However, this is a problem just as relevant to pit sites as to ploughzone data, while we have already seen that the largest lithic scatters exceed most monuments in quantities of artefacts, so there is no need to consider them as inferior data: as Bowden *et al.* (1991, 107) point out, the significance of excavation evidence "does not collapse when we realise that a number of post-depositional processes are also at work on site", so we should take the same approach to surface evidence.

Rather than fretting about the limitations of ploughzone scatters, therefore, we need to embrace their ephemerality and difference, notably the foregrounding of portable artefacts rather than features. It is helpful that theoretical approaches have moved on from the 'off-site' paradigm critiqued by Pollard (2000) towards more sophisticated attempts to integrate landscape and technology (*e.g.* Conneller 2008; Hind 2004). It should be possible to write different histories of occupation and settlement using lithic data than can be derived from monuments alone, and get closer to an understanding of what the term 'mobility' really meant in the Neolithic, where interpretations often tend to be "place-bound and architecture-fixated" (McFadyen 2008, 131). Taking a 'Mesolithic' approach to landscape may help overcome the valuation of the structural over the ephemeral, and the monumental over the domestic, ongoing dichotomies that seem to endure however much we try and do away with them. We need to challenge the idea that all that matters for the Neolithic are sites and monuments, when they were always embedded in landscapes that comprise networks of movements, exchanges and perceptions, some of which are revealed to us through ploughzone lithic distributions. Stonehenge is a case in point: in the very same landscape as the best known group of prehistoric monuments in Britain, surface collection has defined "broadly preferred areas of activity" which "do not lend themselves to conventional methods of location and definition" (Richards 1990, 281).

Part of any project to revive the study of lithic scatters involves revisiting the idea of the taskscape. Its archaeological appropriation simply as a way of mapping activities has been

critiqued by Ingold (2013), who points out that it needs to be understood as a meshwork of relations, with no absolute distinction between taskscape and landscape. Thus lithic scatters do not record activities *per se*, but connections through tasks. As McFadyen (2010, 45) puts it for the Mesolithic, where material is present, even if it is fragmentary, then “there is something to engage with ... that is to do with past people’s lives”. She makes a virtue out of the problems of lithic scatters: rather than searching for flagship sites and trying to unpick palimpsests, we need to accept that at times our evidence for Mesolithic life may be ephemeral, transitory and defined through movement. The same goes, needless to say, for the Neolithic, despite the seductive draw of monuments. The recent work on pit deposition has helped to blur the distinction between monumental/ritual and settlement practice. Lithic data can add to this by recording the ebb and flow of human mobility and its coalescence at particular times and places, helping to reveal the varying tempos and scales of human presence in the Neolithic. Perhaps it is time to look again at the ploughsoil.

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The social construction of place, mobility and stone in Neolithic South-West Britain: A case study from Mendip

Clive Jonathon Bond

This chapter will provide an overview on preliminary evidence for the changing perception of stone; its use, properties and social meaning; the interconnected nature of stone with the social construction of prehistoric places in the Mendip Hills, South-West Britain (Fig. 10.1). The premise is simple; the karstic landscape of Mendip has demonstrated a long settlement history, from late Upper Palaeolithic to Bronze Age, as demonstrated in the tradition of cave use/re-use, but also in the use/re-use in lithic scatters on the plateau (Bond 2004a, 2006). This repeated activity, much of the time in the same or in close proximity to particular locales, certainly must relate to an emerging seasonal cycle of settlement within and between regions (Bond 2003, 2004a, b, 2005, 2009a, b).

However, quality flint and chert had to be introduced, exported, or exchanged into the area over millennia (Bond 2004a, 2009b, 2011). With these lithic scatters other stone artefacts were recovered denoting links with the south-western peninsula but, also the working of (Mendip) Old Red Sandstone outcrops, or periclinal on western Mendip (Green 1992, 27, 68–9, fig. 15; fig. 2). Thus, it appears, stone and perceptions of the materiality of natural and worked stone, is central to gaining a deeper understanding of the social identity of Neolithic communities on Mendip. In this chapter it is argued that stone is at the core of understanding the social construction of this prehistoric landscape (Tilley 1994, chapter 2). Moreover, it is also worthy to note that this Mendip case study accords well with other studies on perceptions of stone, place and the exploration of prehistoric spirituality (Tilley 1996; Tilley & Bennett 2001; Tilley *et al.* 2000).

As part of doctoral research a total of 150 lithic scatters were studied from museum and personal collections with provenances across a sample transect of regional landscape in central Somerset (Fig. 10.1). A primary goal of this research was to analyse unstudied surface lithic collections, the only type of evidence that spanned the total topographic variability in this landscape: the Polden Hills, Somerset Levels and Moors (including the sand and lias islands) and the Mendip Hills. Artefact- and site-based evidence was synthesised: lithic scatters, trackways and platforms, caves and monuments.

Three themes will be addressed in this paper:

- Artefact and landscape evidence
- Prehistoric settlement trajectories and mobility
- Perception of stone and place: portable objects to monumental landscape

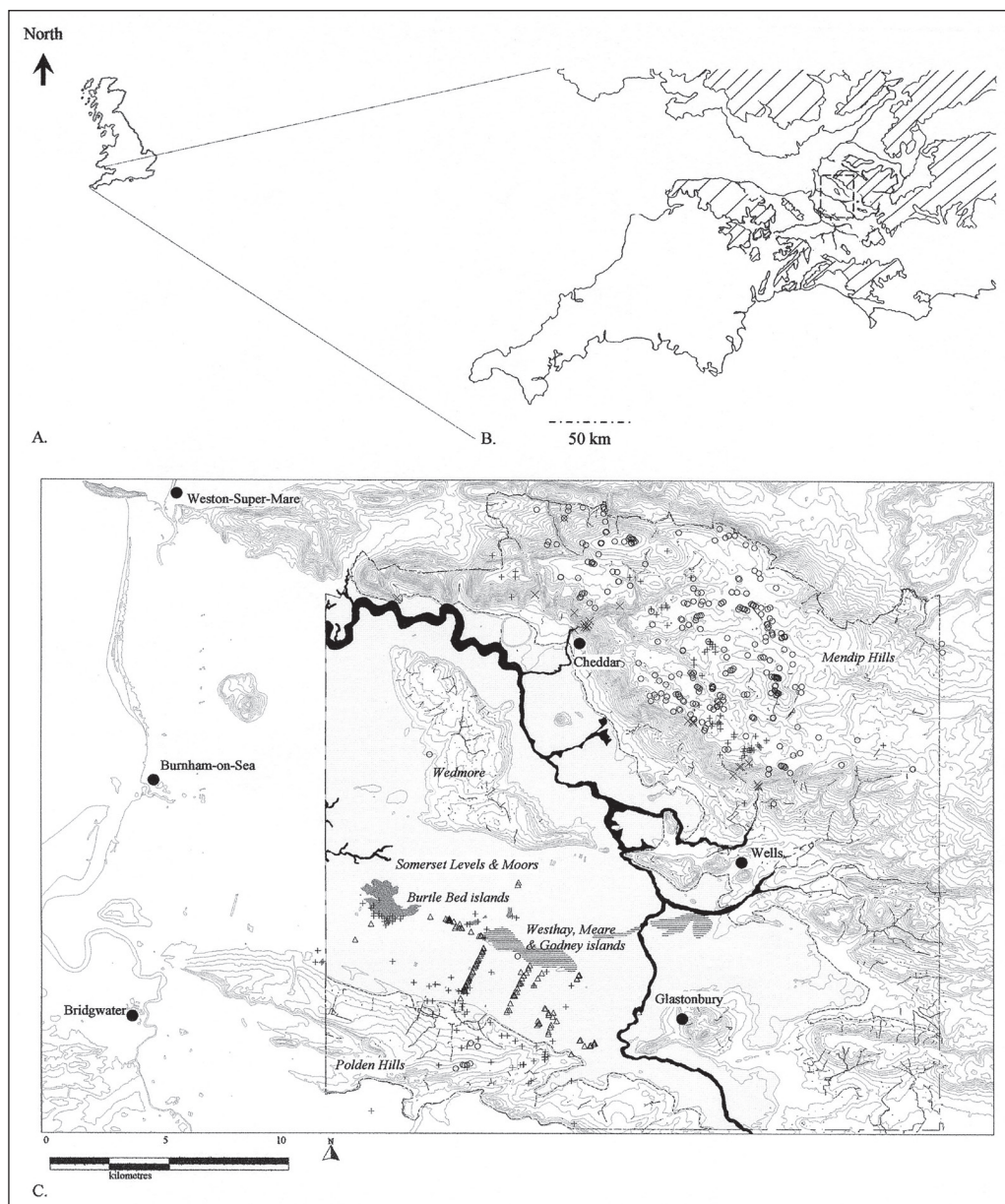


Fig. 10.1: Location, South-West Britain, the regional landscape and the study area.

This chapter will focus on the northern part of the study, the Mendip Hills and the Neolithic-earlier Bronze Age, *c.* 3800 cal BC to *c.* 1400 cal BC. Contemporary perceptions of place and material culture have been explored elsewhere (Thomas 1999; Tilley 1996), but little of this socially aware prehistory has permeated Somerset. Recently the Neolithic

evidence from Mendip has been reviewed (Lewis 2005). This was very much an atheoretical synthesis, its strength on monument survey. The social construction of landscape was not addressed and the artefact record undervalued (even, with recent worker's approaches, see Bond 2007b). A fragmented, partial prehistory remains.

Stereotypical notions on cave use or, for example, the monument centred narrative, constructed in the last century remains unchallenged (Dobson 1931). Somerset prehistory is centred on different types of evidence, or on discrete areas, such as the wetlands (Webster 2000). Contemporary evidence is not synthesised and adjacent landscapes, surely settled and perceived by the same past communities are rarely studied. In this chapter artefact- and site-based archaeologies are reviewed, through the notion of changing perception of stone. Both artefact and place are discussed in terms of social construction; memory and realised cultural traditions that drew their identity from the landscape communities inhabited. Stone is related to cosmology.

ARTEFACT AND LANDSCAPE EVIDENCE

As with the adjacent regions of the South-West and the Wessex chalklands, artefacts are abundant for the Neolithic to earlier Bronze Age such as Neolithic and Beaker pottery or copper/bronze artefacts (Clarke 1970; Gibson 1982; Longworth & Cleal in Cleal & MacSween 1999, 195; Pearce 1983; Taylor 1993). Studies have also centred on monuments, such as the dense clusters of round barrows on western Mendip (Grinsell 1971) and the few long barrows and bank barrows (Darvill 2004a, 250–1). Cave use, those with chambers, or more rock shelters, fissures and swallets have also received much attention. Horizontal access, walking and climbing through or vertical ascent was the means of entering this underworld. Access was often tight, small, seasonally wet or hazardous; flooding, collapse, with unstable rock chokes. However, caves generally have only been viewed as receptacles for one-off activity within periods rather than a locus for re-use throughout prehistory (Bond 2006, chapters 5, 6 & 7). In the earlier Neolithic cave use centred on burial, deposition of body parts and prestigious objects, perhaps echoing past values for places, as later Mesolithic or even earlier activity is often demonstrated. In the later Neolithic, Beaker and earlier Bronze Age this tradition continued, perhaps with cremation or fire related rites, for example at Sun Hole, Cheddar Gorge (Tratman & Henderson 1928, 90–1, 96, fig. 1) or Rowberrow Cavern, Shipham, part of the Mendip dip-slope (Read 1926, 206–7, plate XIV).

The intermittent tradition of Neolithic trackway building in the Somerset Levels and Moors, starting with the earliest, the Sweet Track and Post Track, dated to 3807–3806 BC and 3838 BC, respectively (Hillam *et al.* 1990), also extended into the earlier Bronze Age (Coles & Coles 1998). This craft tradition has been researched in total isolation to activity on Mendip. Any probable movement across and between these adjacent landscapes, including the Mendip Hills is unexplored. The proximity of the wetland, to caves with earlier Neolithic material culture and human remains, for example, Chelm's Combe Rock-shelter, Cheddar, on the Mendip dip-slope (Balch 1926), Hay Wood Cave, Hutton (Everton & Everton 1972) or Flint Jack's Cave, in Cheddar Gorge (Ambers & Bowman 2003) demonstrate how unbalanced this perspective must be! Similar earlier Neolithic plain bowl pottery, with limestone and oolite inclusions has been recovered from the trackways (the Sweet Track

and Burtle Bridge Track: Bond 2003, 2004b), from the cave locations (Clay in Balch 1926, 110–1, fig. ix) and also from surveys and excavations on Mendip (Bond 2006, chapter 3; Taylor & Smart 1983).

In the later Neolithic two henge complexes appear to appropriate settings on Mendip that retained a long community attachment. These settings may have had special properties afforded to them, linked to the geology and landform: the three circles, one part circle of Priddy Circles, Priddy (Tratman 1967) and Gorsey Bigbury, Cheddar (Jones 1937; Tratman 1966). At Priddy Circles the four stone-cut ditched enclosures are located in a damp area with high numbers of swallets (Stanton 1989). At Gorsey Bigbury the henge ditch cuts into a rift and is closely linked with the Long Wood Valley and sink (Bond 2006, chapter 6). Lithic scatters in the vicinity of Gorsey Bigbury, and indeed lithic material re-deposited into the henge ditch, demonstrated a later Mesolithic presence (Jones 1937, 24, plate IX, nos. 65–9). These locales retained meaning over generations. Communities revisited each, perhaps re-appropriating the stone, elaborating their mythical/spiritual significance.

Consequently it is argued in this paper that Mendip was perceived as part of a whole regional landscape in prehistory. What is of interest, however, and central to this discussion is the way stone was curated and used, perhaps symbolically, on and near to the Mendip plateau. At issue here is the perception of (Mendip) Old Red Sandstone outcrops, very prominent when viewed at a distance from Mendip, or even whilst on the plateau, as shown by the three periclinal on western Mendip: Black Down Hill, North Hill and Pen Hill (Green 1992, 27, fig. 15). This Upper Devonian lithology projects above the surrounding Carboniferous Limestone and Dolomitic Conglomerate. It was exploited in the Neolithic and Bronze Age as a source for hammerstones, hones, whetstones and rubbers (Hack 1986–7a, b, 1989, 2005). Moreover, quantities of these objects have been observed in lithic scatters from Mendip and these objects were certainly exported or exchanged throughout the Neolithic to the distant chalklands, as recorded at the causewayed enclosures of Hambledon Hill, Dorset (Healy 1998, 2004) and Windmill Hill, Wiltshire (Smith 1965, 116, 118). The interconnection of the perception of this stone, the place – Mendip, and places therein, including the lithic scatters where worked fragments are recovered (Fig. 10.2), all may be highly significant. Raw material, artefact and place, it is argued constituted a distinctive social meaning for those on Mendip and those in receipt of this stone far away to the east.

The location and dating of prehistoric settlement on Mendip remains contentious (Grinsell 1963; Minnitt 1982; Tratman 1955). Settlement, however, is important for providing the social context for the exploitation and appropriation of (Mendip) Old Red Sandstone (Fig. 10.2a). When, and how, did communities inhabit this limestone plateau? Was this stone and others, such as the quantity of greenstone (Fig. 10.2b) also recovered from lithic scatters, perceived as being symbolically charged? How was its extraction related to the period of monumental construction on Mendip?

PREHISTORIC SETTLEMENT TRAJECTORIES AND MOBILITY

The social context for the use and perception of stone is the presence and absence of people in the landscape. Lithic scatters may be interpreted as a proxy data for the presence

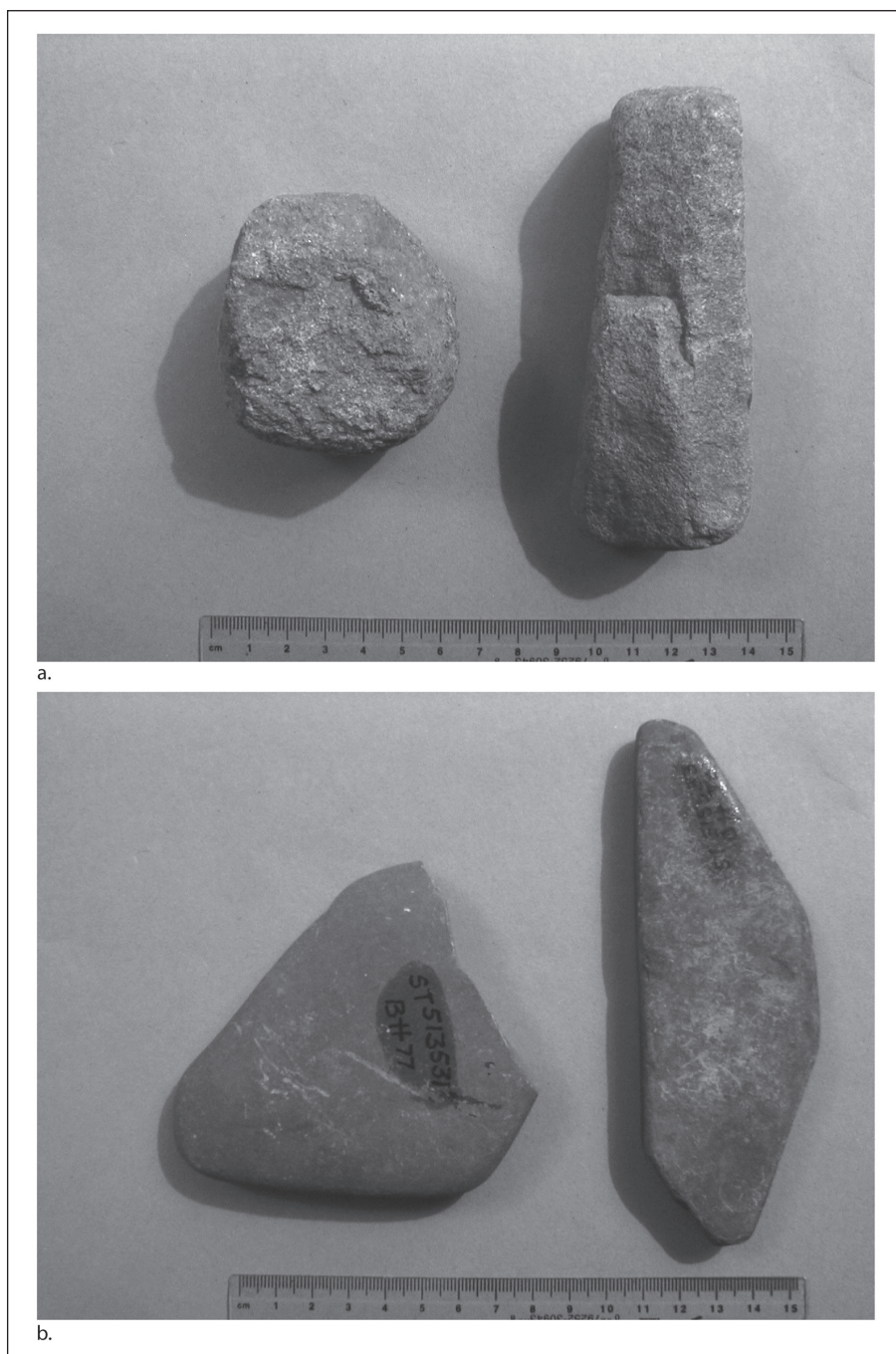


Fig. 10.2: Stone objects made from (Mendip) Old Red Sandstone or Greenstone recovered from a lithic scatter at Priddy Hill, Mendip by Brian Hack.

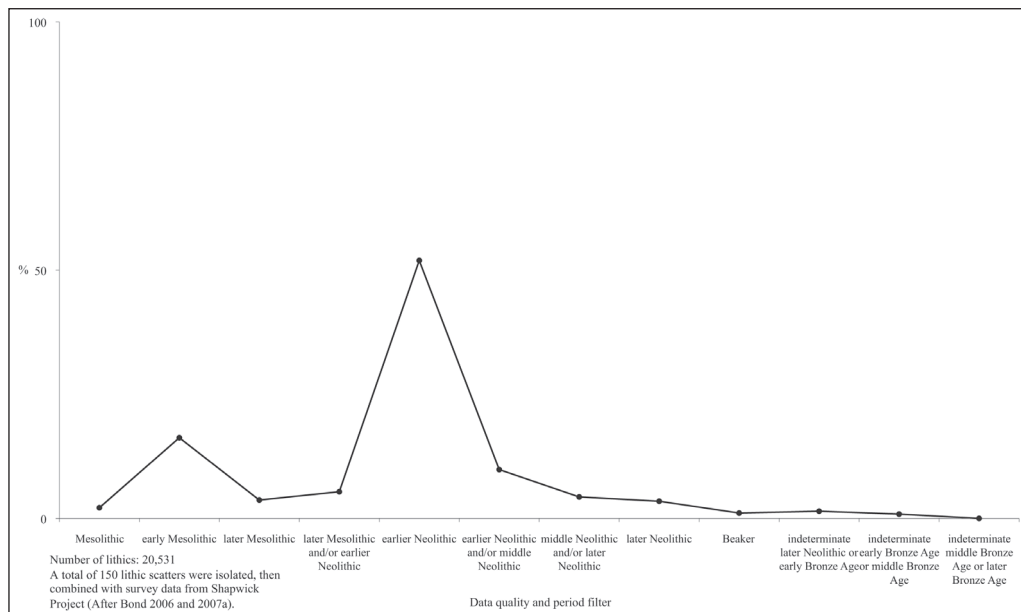


Fig. 10.3: Composition of 150 lithic scatters from the study area.

and absence of prehistoric communities, mapping the ebb and flow of seasonal cycles of settlement; the variation of duration of activity at a place, the revisiting or abandonment of place. The 150 lithic scatters sampled as part of this research provides a means of tracing human activity on Mendip and elsewhere (Bond 2004a, b). Lithic assemblage, flint and chert artefacts can be grouped by chronological diagnostic typologies and patterns in waste production. This long term patterning denotes change in flaking technology, for example, from blade to flake technology during the Holocene (Ford *et al.* 1984; Pitts 1978a; Pitts & Jacobi 1979). Hence, quantities of lithics, without excavated context, derived from the plough soil, may be grouped into data quality and period filters, enabling individual lithic scatters and locales to be phased. A preliminary analysis and comment on the methodology used has been published (Bond 2004a, 2007a). In Figure 10.3 this approach has been employed to obtain values for the phasing of use across the study area. Noticeable across the total landscape is the peak in earlier Neolithic activity followed by reduction thereafter.

Variation occurs, specifically in the presence of peoples in the early and later Mesolithic, lowland to upland, but the central emphasis is on the early to middle Neolithic. This reduction in and after the middle Neolithic to earlier Bronze Age may be explained in two ways: a gradual reduction of people visiting the study area and/or a reduction in any sustained presence of people at individual locales. Stone tool production continued throughout the Neolithic and Bronze Age regionally (Bond 2006, chapters 5, 6 and 7), as argued for much of southern Britain (Young & Humphrey 1999). Thus, this reduction in lithics discarded and recovered at lithic scatters can only be interpreted as a real reduction in community presence at and after the middle Neolithic.

This patterning in lithics is of interest as the trend is counter to that observed elsewhere. In the Wessex chalklands whether in Cranborne Chase or other parts of Dorset (Barrett *et al.* 1991; Gardiner 1984, 1988; Sharples 1991; Woodward 1991) or the Salisbury Plain (Richards 1990) lithic scatters have been recorded as becoming larger and more dense not less in the later Neolithic into the Bronze Age. This trend, recorded in systematic field data has also been observed in the Berkshire, Oxfordshire Downs (Ford 1987a, b; Richards 1978) and in Hampshire (Gardiner & Shennan 1985; Light *et al.* 1994; Schofield 1991). Moreover, as particular parts of the regional landscape became a focus for the building of round barrows and henges in Wessex, similar monumental works commenced on Mendip (Cunliffe 1997, 89, 91, 117–8, 123–7, figs. 3.3, 3.13 and 3.16). But, despite this shared trend, in the case of Mendip, there is little evidence to demonstrate a year-round presence. Here, contrasting with those in Wessex, the lithic scatters consist of small quantities of artefacts and are interpreted as evidence of short-term activity. Very few assemblages from the study area demonstrate that sustained flaking episodes occurred. These are more short-duration, task-centred lithic industries (*cf.* Bond 2004a, 2005, 2006, chapter 6).

PERCEPTION OF STONE AND PLACE: PORTABLE OBJECTS TO MONUMENTAL LANDSCAPE

It has been argued elsewhere that the reduction in lithics discarded after the middle Neolithic in the study area, including Mendip, may relate to the establishment of a 'ritual landscape' (Bond 2005, 2006, chapter 6). An absence of people is equated here to a different sense of place, meaning; a landscape given over to the ancestors, visited seasonally perhaps from Wessex. The density of upstanding monuments; round barrows and two verified henge complexes (potentially a third at Hunter's Lodge, Grinsell 1966, 15), combined with the rich cave burial/deposition, illustrate a very distinctive regional cultural patterning. It is not that communities abandoned this landscape but arguably they perceived it rather differently: more in symbolic terms, perhaps Mendip as an ancestral world to which to return. Long ago, Piggott (1938) also drew attention to the record of rich barrow burials; faience, amber, gold and bronze objects on Mendip, as part of his 'Wessex Culture'. In this context, it can also be posited that here may be a two phases trend illustrating the change in the way stone was used and perceived, earlier Neolithic to later Neolithic-earlier Bronze Age.

Quality flint nodules were imported into the study area from the Wessex chalklands, perhaps those of Dorset, Hampshire and West Sussex to judge from the descriptive survey on stone raw material (Bond *in press*, 2004a, 2005). These nodules linked distant prehistoric communities and may have even been understood in terms of long established social alliances; even symbolic ties signifying links with kin and land. The stone objects; hones, hammerstones, querns, rubbers recovered from lithic scatters on Mendip also appear to be recovered within earlier Neolithic-middle Neolithic dominant lithic scatters (Bond 2006, chapter 5). There is often a slight component of post-middle Neolithic to later Neolithic artefacts but rarely an emphasis. Therefore, it may be argued, as Gardiner (1990) suggested for Dorset, Hampshire and West Sussex, that surface nodular flint was systematically exploited throughout the Neolithic and before. These nodules united distant

communities and may trace seasonal movements, both of people and herds (*cf.* Budd *et al.* 2003; Healy 1998). This may also be the case for the lithic scatter associated stone objects recovered on Mendip: Greenstone and (Mendip) Old Red Sandstone (recovered away from Mendip at causewayed enclosures). This would suggest stone was portable, an indicator of people movement and exchange.

The working of (Mendip) Old Red Sandstone and Greenstone may even be associated with the manufacture and intentional destruction of flint polished/ground axes on Mendip (Table 10.1). From 29 locations on Mendip providing polished/ground axe flakes, 20 yielded single artefacts, one was recovered from a swallet (Charterhouse Warren Farm Swallet: Thomas 1988, 207), 10 were associated with stone objects (Table 10.1). Stone use and discard may have been associated with the making, through use in grinding, ‘birth’ and the intentional destruction, ‘death’ of prestigious objects. The flint and stone polished/ground axe, as a powerful symbol on Mendip was most probably created and negotiated at these locales.

The emphasis here is on portable objects in the earlier Neolithic, with Greenstone linking prehistoric communities in the south-western peninsula, the Lizard, with Mendip. The hones and rubbers listed here (Table 10.1) also support the trend for earlier stone axes in Somerset, either ungrouped ‘greenstone’ or sourced to Cornwall, Group I, Mounts Bay, near Penzance or Group IV, near Callington (*cf.* Davis *et al.* 1988, 18–20, table 6;

Table 10.1: A selection of lithic scatters demonstrating an association between polished/ground flint axe flakes and stone artefacts in the Mendip Hills

<i>Site name</i>	<i>Polished/ground axe flakes total</i>	<i>(Mendip) Old Red Sandstone</i>	<i>Greenstone</i>	<i>Dominant data quality & period filter</i>
Callow Hill, Cheddar	3	1	—	EN
Beaker Site, Holly Tree, St Cuthbert Out	9	21	4	EN
Dale Farm, Priddy	5	10	8	EN
Ebbor Grove Farm, Site B1, St Cuthbert Out	19	3	5	EN
Priddy Hill Farm, Priddy	1	1	—	MN/LN
Priddy Hill long mound, Priddy	1	28	2	EN
Long Wood, Cheddar	4	2	1	EN
U.F.B, Charterhouse-on-Mendip	1	1	—	EN
Fry’s Hill, Axbridge	5	1	—	EN
Priddy (B. Hack’s personal collection)	1	—	1	EN
Total	49	68	21	

Notes: in column 5 the abbreviations used for the data quality and period filters are as follows: EN = earlier Neolithic, MN/LN = middle Neolithic and/or later Neolithic

Minnitt 1982, fig. 4.3). As already mentioned, the Old Red Sandstone (Mendip origin), was exported/exchanged east towards seasonal aggregation centres, such as the causewayed enclosures of Wessex. This trend in object movement is also supported by pattern in earlier Neolithic tempering in pottery, with limestone and oolite inclusions, sources to the limestone geology of the Cretaceous Greensand Escarpment, adjacent the Wessex chalklands often favoured (Cleal 1992; Darvill 2004b, 194–200). People's movement has also been clearly demonstrated with isotopic studies, linking people's place of origin, Mendip to Cranborne Chase (Budd *et al.* 2003).

Arguably Mendip acted in this stone exchange system as a central fulcrum uniting the South-West and Wessex chalklands. Artefacts were portable, symbolic materials, establishing and reaffirming social alliances across space and time. However, in the later Neolithic, the onset of a large scale monumental tradition altered the local perception and meaning of stone. Few long barrows are located on Mendip. Those that are present are constructed as earthen mounds with no sizable stone-based architecture, save Stoney Littleton east of the study area (Darvill 2004a, 250–1; Grinsell 1971). Stone was utilised in monument building just at a point when fewer portable objects were being brought and discarded on Mendip. This observation stands if the association with earlier Neolithic activity at lithic scatters is correct (Table 10.1).

Three examples of the monumental use of stone on Mendip, contrasting with the small scale portable use of stone in the earlier Neolithic are now summarised:

Gorsey Bigbury henge, Cheddar

When the entrance and causeway of the henge was excavated by Tratman (1966) a number of features were recorded (Fig. 10.4). Blocks of (Mendip) Old Red Sandstone were recorded in these features, either fallen or intentionally buried in pits and a posthole. These may be interpreted as obstructions to access, or rather as part of a standing stone alignment across the entrance. Interestingly, the selection of Old Red Sandstone may have been highly significant as the henge entrance faces due north, intentionally aligned on the landscape feature of Blackdown Hill. In effect, the Old Red Sandstone blocks brought a very tangible element of the hill into the immediate henge setting. The henge with its rock-cut ditch, part of the Rhino Rift, the Long Wood Valley, sink and swallet, linked elements of stone/earth and water (seasonally active dry river bed). The use of Old Red Sandstone in the entrance of the henge united natural topography, that which was seen, with a new ceremonial practice; the arena of the henge. Old Red Sandstone had been perceived as, larger in scale, less portable, intentionally used and appropriated as part of a sacred setting. Stone/earth, water and place united in one act to create a new sense of the sacred in a long visited seasonal locale.

Priddy Circles henge complex, Priddy

With the excavation of the entrance and causeway at Circle 1, Tratman (1967) also recovered a second standing-stone like arrangement (Fig. 10.4). Once again, pits were recovered, but in this case adjacent to a post alignment and earthen bank. Postholes were interpreted as hurdle structures. The entrance with its stone holes and pits was interpreted to have originally contained two 'standing stones... [and] perhaps another stone', set to the west side of the causeway and adjacent the ditch (Tratman 1967, 119).

North Barrow Tynning's Farm, Cheddar

Here a complex sequence was excavated showing phases of re-use, cutting cists, placements of human remains with pottery then re-covering the mound cap (Read 1924; Taylor 1933, 1951). The 'barrow' consisted of a natural knoll on the plateau, used as a barrow mound and elaborated through successive depositional events. After a number of pits were cut and used for rites associated with cremations, associated with accessory cups a central pit was dug. In this a Biconical Urn was inserted (Read 1924). With the Biconical Urn was the neat placement of (Mendip) Old Red Sandstone slabs/fragments at the level of the pot mouth. This was then covered over. Probably other sherds, lithics and burnt material were also enclosed by the slab, adjacent in the mouth earth packing. Then a limestone slab was deployed to cover the urn, followed by a covering of stones and soils (Read 1924, 138).

In each example (Mendip) Old Red Sandstone was selected, utilised either to form a structure or linked directly with material culture that would have been symbolically charged. In the case of the North Barrow, Tynning's Farm, the slabs of (Mendip) Old Red Sandstone links the cremation and pot with the earth and the mound (and Mendip itself). In both Gorsey Bigbury and Priddy Circle 1 entrances, the (Mendip) Old Red Sandstone, acted as a means of accessing or obstructing views or movement, a key element of henge architecture (Harding 2003, 65–7). Performance of ceremonies and the use of local well known and sourced materials must have been highly significant to participants at ritual gatherings. Of course using local stone would also engender local involvement in ritual preparations: quarrying of stone, journeys to and from the source, linking communities from afar and near to the monument and perhaps even supernatural forces in the landscape, the source of stone. The view of a stone source and its associated monumental installations may also be highly significant, as argued for the alignment of Gorsey Bigbury. Ceremonial processions may have occurred between stone source and monument. Such performances may have evoked spirits linked to the elemental power of the stone. These supernatural forces may well have also been tied to the ancestral realm, perhaps that within the limestone plateau and the earth. The worked stone from the (Mendip) Old Red Sandstone outcrop may have carried many messages: signifying the rites – a cult, the specific monument involved, group social identity and origin.

A further noteworthy example is the nearby henge complex of Stanton Drew (David *et al.* 2004). For sometime Stanton Drew has been known to contain stone, uprights in this case, sourced from different local geologies (Lloyd-Morgan 1887). All the stone was quarried from Mendip: Dolomitic, Limestone and Sandstones (1887, 46–8). Central here is the obsession with a Mendip lithology. Arguably the properties, as perceived by participants at rituals, and the source of the stone, are the underlying theme perhaps not the arrangement. It may be the medium of stone was the central factor, embedded in an emerging elemental cosmology (*cf.* Richards 1996a, b).

In the later Neolithic and thereafter, stone particularly, the use of (Mendip) Old Red Sandstone appears to transform from a portable use to a larger and more fixed function. This is tied to sacred places and the act of monumentalising on Mendip and with socio-economic alliances to the east in the chalklands of Wessex. At this time, it may also be the case that greenstone is reduced in import/exchange into the study area (although the date for cessation of the Cornish greenstone quarries remains unclear,

as does the exact provenance, *cf.* Berridge 1994). Whether the currency of (Mendip) Old Red Sandstone fragments/blocks, of a portable nature continued east into the Wessex chalklands is unknown. A value system centred on stone, specific local types does however, suggest a move from portable object (earlier Neolithic) to contributing to a monumental and ritual landscape (later Neolithic-earlier Bronze Age). How these value systems intimately enmeshed with beliefs and cosmological order, such as the Beaker phenomenon requires further consideration (*cf.* Bond 2005). Bradley's 'folk geology' may hold real potential in isolating attachment to place, identity and belief mediated through stone (Bradley 2007).

CONCLUSIONS

In this chapter observations on the patterning in local and regional use of stone throughout the Neolithic into the earlier Bronze Age have been presented. Prehistorians enjoy studying easily isolated topics: monuments, artefacts and landscape. However each aspect was interrelated in the daily routines, experience and beliefs of the past individual and group. A more deeply grounded focus on stone, the way it was perceived and used, linking artefact to monument and landscape can, arguably enable us to transcend scholarly divisions and preconceptions. Only combining evidence, transcending these boundaries will empower a fuller, more satisfying study of regional social prehistory: stone as perceived, from raw material to symbolism and belief. This stone-materiality is central to understanding a regional Neolithic lifeway.

Within the Neolithic of Mendip stone is central for understanding the world view of those inhabited places, imbued with meaning. Local peoples inhabited and perceived stone above ground and below ground, within the underworld. Knowledge of ritual events and the folk knowledge of the different properties of certain types of stone may have had a long tradition extending over generations. This process of attachment to stone object and place may give some glimpses of how this past Neolithic social world was constructed. An example of how stone, place and context come together on Mendip is the carved feet marked on the fine-grained sandstone upright slab, part of the cist-burial excavated at the Pool Barrow, West Harptree (Grinsell 1957, 231, plate XXVII; Pitts 1978b). These markings were cut, but hidden, below ground, within the soil, facing into the cist. The properties of stone may have acted as a medium between those cremated in the cist (actual ancestors), the specific physical setting – Mendip and an ancestral burial ground located near the supernatural underworld (the interior of the limestone plateau). Such resonances may have acted at monumental settings, as here, and with or between portable stone objects, carried to and from each place. Furthermore, this alternative approach towards the procurement of stone raw material and tracing artefact biographies, already started for Neolithic Somerset (Bond 2004a, 2005, 2006) also has a broader European context. This is demonstrated, for example by van Gijn's Lower Rhine Basin case study (2007), research in Holland (van Gijn 1998), or studies on the procurement, exchange and value of stone raw materials and axes in western and central

France (Le Roux 1998; Pétrequin *et al.* 1998). Neolithic Mendip was not a socio-economic backwater. It was part of a broader way of seeing stone, culturally appropriating place, which others understood within Neolithic Wessex and within the Irish Sea area. It was, rather, a place connected by regular people and herd movements, to and from the adjacent central southern chalklands of England.

Stone artefacts, whether flint nodules from the Wessex Downlands (Bond 2004a, 2011), Greenstone from Cornwall, or (Mendip) Old Red Sandstone from the Black Down Hill on Mendip would be enmeshed within rituals, memories and a sense of place. Stone, as perceived and used was keyed into a community identity. Addressing these specific contexts is the only way to access what this stone meant to the many people who came into contact with it on Mendip or further away. Stone was one element, a symbolic medium that can trace that much sought after research aim, the economy of substances prized in British Neolithic studies (Thomas 1998; 1999, chapter 10). The diversity of Neolithic material culture on Mendip, can, as I have demonstrated contribute to this new social synthesis of Neolithic local and regional societies in Somerset. These were nested small-scale societies in the Brue Valley and on Mendip at some distance from the Wessex later Neolithic polities that built Stonehenge, Avebury and the Dorset Cursus. Importantly, it appears, with the regular exchange of stone, possibly movement of herds and people, they were not at the edge of that culture, but closely embedded within it.

The Saxon 'Summer-pasture', Somerset County place-name (drawn from the Old English place-name of Somerton, meaning 'Summer farm/settlement' [Key to English Place-Names 2015]), may well belie a very ancient tradition of people and cattle movement. People, cattle and artefact (in this, case stone) movement, back and forth from Wessex and the Somerset Basin may have be linked to a deep historical tradition extending back well into prehistory. Hoskins (1960) set the settlement of the *Somersaetas*, or the Saxon group who settled in the summer at Somerton, shortly after a victory at Dyrham in the Cotswolds in 577 AD. But earlier cultural connections may be plausible.

It is argued here that a similar relationship between place, people and artefacts, was at the centre of the social identifies of community in Neolithic and earlier Bronze Age Britain. Mendip is one case study that demonstrates these relations, social and material. But, this is likely to be only the 'tip of the iceberg' of connections, as Healy (1998) astutely noted. In future as isotopic studies on human and animal bone samples are processed it is likely to demonstrate population movements across watersheds, along rivers and into discrete regional Neolithic territories! Indeed, some indication of these connections has already been demonstrated with preliminary results of strontium isotope analyses of cattle teeth from recent excavations at Durrington Walls, Wiltshire (Viner *et al.* 2010). Movement of some cattle in the later Neolithic from the West and South-West was implied; possibly cattle being transported over a distance of some 100 kilometres (Viner *et al.* 2010, 2818). It is probable with further studies in time these connections and evidence of mobility will match the material culture, as already recorded in this chapter. So, between flint, stone, monuments, people and their herds of cattle, Mendip is set to play a central role in enabling a better understanding of how complex social and economic ties were constituted between regional and local polities in Neolithic South-West Britain.

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